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ATTITUDES SELF-CONCEPT VALUES & ACHIEVEMENT OF COLLEGE STUDENTS

R. N. MANAV

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Attitudes, Self-Concept Values and Achievement of College Students

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THIS BOOK IS DEDICATED
TO MY PARENTS

Foreward

"Attitudes, Self-Concept and Values of College Students" is the outcome of an empirical research made by the author. It centers around a differential understanding of the academic achievement of the students of professional and non-professional colleges. It studies how attitudes self-concept and values of these students influence their academic achievement. It reveals that these psychological characteristics are important factors of academic achievement; but they function differently in case of these two different groups of students.

The book is important as it presents new knowledge about professional and non-professional college students. It may be found useful in understanding these groups of students and the dynamics of their academic achievement. This fact may go a long way in making the teachers of these students wiser and knowledgeable. It may also contribute to the knowledge and insight of the researchers who wish to work in the area of students' academic achievement. The students, too, may be benefitted as they are likely to understand themselves more fully after having read this book.

On the whole, I feel investment in the publication of this book may yield sufficient return in the form of human resource development.

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Preface

Higher education is one of the most important forms of national investment. It is through university education, that the leaders of society in administration, industry, government and various other spheres come. One of the most important functions of universities in the modern world is to provide competent men and women trained in agriculture, arts, medicine, science and technology, and various other professions. In the last two decades, the number of professional institutions including engineering, medicine, technology, management and teacher-training colleges has increased appreciably. Improvement in professional education is necessary and comprehensive researches must be conducted in this field.

Very few researches have been conducted to study the non-intellectual personality characteristics of the college students. Especially, the problems of professional education have not attracted adequate attention of educational researchers in India. The present study is an attempt to throw light on this neglected area of professional education. This investigation attempts to measure and compare the attitudes, self-concepts and values of professional and non-professional college students. The researcher has also attempted to analyse the relationship of these variables with the students' academic achievement.

The findings of this study may be helpful to teachers, guidance workers and counsellors in providing vocational and educational guidance. Besides providing valuable educational implications, the present study will also provide guidelines for further research in the field of professional as well as non-professional education.

The investigator wishes to express his deepest gratitude to Dr. R.P. Bhatnagar, Retired Professor and Head, Department of

Education, Meerut University, Meerut, for his able guidance, valuable criticism and encouragement throughout the course of investigation, construction of attitude scale and correction of manuscript. The author will ever remain indebted to him. The author is very grateful to his teachers, Dr. R.S. Pandey, Professor and Head, Department of Education, Allahabad University, Allahabad, and Dr. R.A. Sharma, Professor and Head Department of Education, Meerut University, Meerut for encouraging and helping him throughout the study.

The author also acknowledges the help of Prof. M.K. Raina, Member-Secretary (ERIC), N.C.E.R.T., New Delhi, Dr. B.B. Lal, Principal, D.V. College Orai, Dr. S.B.S. Bhadauria and Sri D.S. Katiyar, Lecturers in Geography Department, D.V. College Orai with many thanks. He is also grateful to his wife Smt. Usha Manav and his uncle Sri Brahm Singh, Field Investigator, D.D.A. New Delhi for helping him in tabulating the data. The willing co-operation of the Principals, the teachers and the students of the concerned professional and non-professional institutions is, also, acknowledged with thanks.

The financial help received from U.G.C. for field work and data processing is acknowledged thankfully. The writer is, also, very thankful to the authorities of N.C.E.R.T., New Delhi for sanctioning the publication grant and, thus, helping him to present the research work in this form.

—R.N. MANAV

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1

Introduction

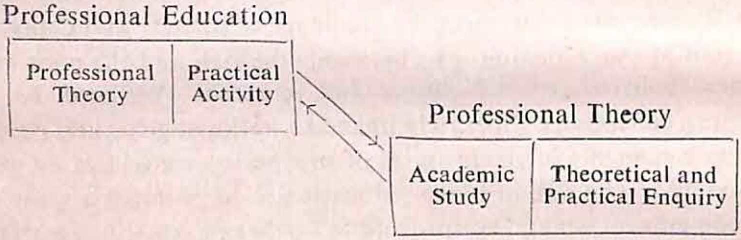
Education plays a vital role in the programme of nation building. For that reason the sub-title of the Report of Education Commission is *Education and National Development*. The most powerful instruments to meet the challenge of poverty and deprivation, and of the widening gap between the rich and the poor and between countries, are education and research. We need better and more education deliberately linked to national goals and needs. The basic elements of rising spiral of prosperity are education and technology. The role of higher education is to promote a sense of common citizenship and culture and to further national integration, to make a direct contribution to national productivity, and to contribute to the rapidly expanding store of knowledge and technology.

Analysing the present conditions and diverse needs of the modern society, it is clear that higher education has a special role in it. In this respect, the universities are perhaps the greatest assets of a nation and university education should not be the privilege of a few, it should be the right of many. The Indian University Commission[1] under Dr. S. Radha Krishnan contended that universities must provide leadership not only in politics and administration but also in various professions, industry and community.

To achieve the objectives of higher education mainly two types of institutions have been opened : (1) Professional and (2) Non-professional. Professional institutions cater to the technical needs of the country. They train and educate teachers, lawyers, engineers, doctors and so on. Non-professional institutions include all other graduate and post-graduate colleges. These two types of institutions differ from one another in many respects. It is common experience that the students of these two types of institutions differ in a number of ways.

The Concept of Professional Education

Professional Education, according to Blauch[2] consists of those form of education that prepare men and women for practice of the professions. Professional education includes the study of professional theory and the practice of professional skill but there is also an overlap between these two activities in which students should engage in the critical study of practice and skills in relation to their theoretical knowledge. The balance between theory and practice is crucial in all forms of professional education. A constant interaction between the two as shown below is what reality demands.



The Characteristics of Profession

Tyler[3] described two main characteristics of a profession: (1) the existence of a generally recognised code of ethic supported by group discipline and (2) the basing of technical operations on general principles, rather than rules-of-thumb or routine skills. According to Carr-Saunders and Wilson[4], "The application of an intellectual technique to the ordinary business of life, acquired as a result of prolonged and specialised training, is the chief distinguishing characteristic of the profession."

Flexner[5] has described six criteria for distinguishing professions from other kinds of work. According to him, professional activity was: "(1) basically intellectual, carrying with it great personal responsibility, (2) it was learnt, being based on great knowledge and not merely routine, (3) it was practical rather than academic or theoretical, (4) its technique could be taught, this being the basis of professional education, (5) it was strongly organised internally and (6) it was motivated by altruism, the professionals viewing themselves as working for some aspects of the good of society." On the basis of these critera, he pointed out that medicine, law, engineering, teaching, painting, music etc. were definitely professions but that plumbing, banking and social works were not professions.

The Problem of Failure and Wastage in Higher Education

A serious and urgent problem, directly related to academic standards is that of wastage of students years due to relatively high proportion of failures at university examinations. In spite of selective admission, there are still failures, dropouts and huge wastage in professional education also.

A study conducted by the Institute of Applied Manpower Research reports that the rate of wastage in the first degree engineering institutions is 15·6 percent where the duration of engineering course is four years and 19·3 percent where the duration is five years.[6]

Another study conducted by this institute reports that only 50 per cent of the M. B. B. S. students pass the course in normal time, while the remaining clear it by putting in an additional time of upto three years. It further adds that only 35 per cent of the B. D. S. students pass the course in normal time, another 53 per cent pass it by putting in one more year and remaining by putting in two to three additional years.[7]

In view of the high cost involved in the training of professional students, especially those of engineering and medicine, failure and wastage are matters of vital concern to the society. But the reasons for this high rate of failure and wastage at graduate level have not been thoroughly analysed. There is a relative lack in India of such studies as could analyse the factors associated with the success or failure of college students. This fact motivated the researcher to make an attempt to measure certain psychological characteristics of professional and non-professional college students and to analyse the relationship between these characteristics of students and their achievement.

THE PROBLEM

Nature of subject matter, curriculum, co-curricular activities and the environment of a particular college are organised for achieving the aims and objectives of the desired professional or non-professional education and they get differentially structured. This difference in their environmental structure may affect differentially the growth and development of psychological characteristics of the students of professional and non-professional colleges. It may reasonably be thought that the students of professional and non-professional colleges, for this reason, may differ in their values, attitudes and self-concepts. This is worth studying for several reasons. Research in this direction has not received sufficient attention so far, particularly at the professional college level. Hence, the investigator is tempted to make a comparative study of the attitudes, values and self-concepts of the professional and non-professional students with a view to specifying how the two groups of students differ from one another on these variables.

A good number of investigators come to realise the importance of non-intellectual factors in academic settings. Many psychologists have tried to study the relationship of achievement motivation, goals and aspirations, self-concept, attitudes, interests, values, study habits, persistence, introversion-extroversion, anxiety, neuroticism, adjustment and other personality factors with the academic achievement of the students at various levels. Many of these variables have been found significantly related to the academic achievement.

Like other factors, self-concept also is supposed to be a facilitating or limiting factor in school and college achievement. Brookover. Paterson and Thomas[8], Davidson and Lang[9], Passow and Goldberg[10], Roth[11], and Richards, Cline and Abe[12] have conducted studies pertaining to the relationship between self-concept and scholastic performance, and found a positive relationship. It is found that high achievers in both schools and colleges possess a feeling of adequacy. While some investigators have found relatively low correlation between self-concept and academic achievement, others have found fairly high correlations.

Because an attitude has motivational properties, high achievers are expected to possess favourable attitudes towards their teachers, peers, subjects of study, school or college, parents etc. The attitudes one holds toward his work and his ability to work are as important as are the actual physical conditions.

A number of investigators such as Armour[13], Barrett[14], Finger and Schlesser[15], Passow and Goldberg[10], French[16], and Wilson and Morrow[17] have conducted studies to find out the attitudinal concomitants of scholastic achievement. It has been generally found that positive attitudes toward school and college, subjects of study, teachers etc. are associated with high academic achievement.

Many theorists advocate that a person's value orientation is a revealing indicator of his traits. His value system may also be significant determiner in modeling his future. The role of values as a factor in determining or predicting success has been explored for various occupations. Cattell, Sealy and Sweney[18], Walker[19], and Cole and Miller[20] found that the values are related to the students' academic achievement. Thomson[21] revealed that the grade earned by the students also appeared to be related to personal values.

On the basis of above discussion, it is concluded that self-concept, attitudes and values of students have a relationship with achievement. Most of these studies have been conducted at school level and very few at the college level. But perhaps no study has at present been conducted in India to relate these variables to the achievement of professional-college students, In this investigation the researcher has attempted to analyse the relationship of these variables to the achievement of professional and non-professional college students. Therefore, the problem undertaken for the present investigation is entitled as, "*A study of attitudes self-concept and values of professional and non-professional college students and relationship of these variables with their achievement.*"

Significance of the Study

Engineering, medicine and teaching are considered to be three important professions which occupy an esteemed position in the society. Engineering institutions provide us with engineers who are concerned with the construction of buildings, dams, bridges, means of communication and many other technological things which are useful to human beings. Doctors have more importance in society as they save human lives and make them more happy by providing good health through various treatments. The teacher is the key stone of the educational structure. It is obvious that the future of a nation depends on the quality of the teachers the country has. On the other hand, non-professional college students contribute to other fields of national development such as administration, business, management etc.

Thus, we see that the development of a country depends on both types of education, professional and non-professional. Now-a-days it is seen that in every corner of the world more emphasis is given on professional education. Large sums of money are being spent for training more and more professional workers. In our country, the number of admission in each professional college has been increased. More funds, buildings, equipments and teachers have been provided. Improvement in professional education in the country, however, can not be judged merely on the basis of an increase in the number of colleges, students, equipment and teachers. The real value of professional education must be sought in the success of professional student as a specialist and as a man.

' Problems of professional education have not attracted the desired attention of educational researchers in India. The need for research in this area judged from educational stand point is vital and urgent. Any scheme for improving professional education in the country will be unrealistic unless more objective studies are conducted covering different aspects of professional education, and their major findings given due recognition. Surveys and studies conducted in western countries in the field of professional education cover such aspects as history, admission requirements, selection procedures, objectives, cost of education, financial aid, curriculum content, teaching methods, faculty internship, evaluation of achievement etc. There is considerable paucity of research attempting to discover the characteristics or qualities of professional students or to understand the effect of professional education on students' attitudes and values."[22]

The present study is an attempt to throw light on this neglected area of professional education. The findings about the characteristics of the professional and non-professional college students may help the teachers, guidance workers and counsellors in giving vocational and educational guidance to the students. The findings of the study may be utilised to raise the standard of professional education. Besides providing valuable educational implications, the present study will provide guidelines for further research in the field of professional as well as non-professional education.

Rationale of the Study

The study was conceived as an integration of several lines of investigation. Important among these were the researches indicating that variability of individual behaviour from one envrionment to another is apt to be quite substantial. The physical as well as psychological environments of professional and non-professional colleges differ in several aspects such as types of courses, organizational climate, educational objectives, nature of profession, methods of teaching and evaluation etc. This variability of environment and other work convinced this researcher of the necessity of conducting a study to compare the self-concepts, attitudes and values of professional and non-professional college students.

In a personality study of engineering, law, medical and teacher-training students, Pal[23] found that students of these professions differed significantly in some personality characteristics. This investigation also inspired this researcher to conduct a study of values, self-concepts and attitudes of professional and non-professional students

As discussed earlier, findings of many studies reveal that students' self-concepts, attitudes and values are related to academic achievement. These findings inspired this researcher to analyse the relationship of these variables with the academic achievement of professional and non-professional students.

Objectives

The objectives of the present study were :

(1) To compare the attitudes, values and self-concepts of the professional and non-professional college students.

(2) To compare the attitudes, values and self-concepts of the students of engineering, medicine and teaching the three groups of professional students.

(3) To examine whether there are significant differences in the attitudes, self-concept and values of professional and non-professional college students.

(4) To examine whether there are significant differences in the attitudes, self-concept and values of the students preparing for the professions of engineering, medicine and teaching.

(5) To ascertain the relationship of attitudes, self-concept and values with the achievement of professional and non-professional college students.

(6) To analyse the variable that contributes more significantly to the academic achievement of the students in a particular faculty.

(7) To offer suggestions regarding the utility of these characteristics for educational and vocational planning of students.

The Hypothesis to be Tested

Under this study the following hypothesis have been formulated and tested :

(1) There is significant difference in the self-concepts of professional and non-professional college students.

(2) There is significant difference among the self-concepts of engineering, medical and teacher-training students as follows :

  (a) There is significant difference in the self-concepts of engineering and medical students.

  (b) There is significant difference in the self-concepts of engineering and teacher-training students.

  (c) There is signicant difference in the self-concepts of medical and teacher-training students.

(3) There is significant difference in the attitudes of professional and non-professional college students.

(4) There is significant difference among the attitudes of engineering, medical and teacher-training students as follows :

  (a) There is significant difference in the attitudes of engineering and medical students.

  (b) There is significant difference in the attitudes of engineering and teacher-training students.

  (c) There is significant difference in the attitudes of medical and teacher-training students.

(5) There is significant difference in the values of professional and non-professional students.

(6) There is significant difference among the values of engineering, medical and teacher-training students as follows :

- (a) There is significant difference in the values of engineering and medical students.
- (b) There is significant difference in the values of engineering and teacher-training students.
- (c) There is significant difference in the values of medical and teacher-training students.

(7) There is significant relationship between students self-concepts and achievement.

(8) There is significant relationship between students' attitudes and achievement.

(9) The students' achievement is independent of their values.

Definitions of Important Terms

A few terms have been used in this study at different stages which need clarification.

Self-Concept

In the present study self-concepts were defined as the perceptions of the students about their own personality qualities. Only five dimensions of self-concept were measured in this study. The different aspects of self-concepts have been explained in Chapter III.

Values

Students values have been defined as "what the students think important in life." Six important values have been selected in order to relate them to the students' achievement. These six values—personal, religious, educational, materialistic, social and humanistic have been explained in Chapter III.

Attitudes

An attitude has been defined as the degree of positive or negative affect associated with some psychological object. In other words, it is defined "as a tendency to react favourably or unfavourably towards a designated class of stimuli." In the present study, the researcher is concerned with attitudes of students toward education, teachers, family and society.

Achievement

The aggregate marks obtained in examination by students of various faculties has been accepted as the criterion of students' academic achievement.

Delimitations

The study has been delimited in the following ways :

(1) The study is confined to the professional and non-professional institutions of Meerut region in U.P. Hence the results obtained and the inferences drawn are relevant to the professional and non-professional institutions of Meerut Region only.

(2) The study is limited to the professional students of three faculties only, namely, engineering, medicine and teaching. These professions have been selected because they differ in their nature. The first is based on physical sciences, the second, on biological sciences and the third, on social sciences. Hence, the findings are relevant only to these three professions.

(3) The study is further limited to the non-professional students of two faculties only, namely, arts and science.

(4) The study is confined to the students studying for the first degree, that is Bachelor of Science (B. Sc.), Bachelor of Arts (B. A.), Bachelor of Engineering (B. E.), Bachelor of Medicine and Surgery (M. B. B. S.) and Bachelor of Education (B. Ed.). The choice of these students was determined by the consideration that they were all studying for the first degree and were more easily available for testing than the students of postgraduate classes.

(5) The study is confined to male students only. Female students have not been included in the sample to control the sex variable. Hence, the findings are relevant only to male students.

(6) The following dimensions of the involved variables have been covered in the present study.

I. Self-Concept

(1) Achievement, (2) Confidence, (3) Withdrawal, (4) Inferiority, (5) Emotional Instability.

II. Attitudes

(1) Attitudes toward education, (2) Attitudes toward teachers, (3) Attitudes toward family, (4) Attitudes toward society.

III. Values

(1) Personal, (2) Religious, (3) Educational, (4) Materialistic, (5) Social, (6) Humanistic.

IV. Academic Achievement

Aggregate marks obtained in examination by students of various faculties has been accepted as the criterion of students' academic achievement.

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2

Review of Related Researches

A number of investigations have been undertaken to find out the characteristics of students in separate professions and faculties. But, this is, perhaps, the first study, that compares the self-concept, attitudes and values of professional and non-professional college students. In the present study, the researcher has also analysed the relationship of these three variables with the achievement of professional and non-professional students.

A number of investigators have used different methods to explore the various non-intellectual factors related to scholastic achievement. Some have studied college students, other school students, and still other junior students. The available studies are generally not comparable with one another as they differ in many respects—samples studied, tools employed, designs used, etc. An attempt is made, in this chapter, to survey the relevant studies in brief. Because of the lack of space, different studies have not been reviewed individually. Available investigations have, therefore, been grouped together, depending upon the variables studied and the results obtained.

The existing researches that are directly and indirectly related to the present study may be conveniently classified under three main headings.

1. **Self-Concept**
    (a) Comparative studies
    (b) Self-concept and achievement

2. **Attitudes**
    (a) Comparative studies
    (b) Attitudes and achievement

3. Values
- (a) Comparative studies
- (b) Values and achievement

SELF-CONCEPT

The idea of self-concept originally was proposed by Lecky[1] and adopted by Rogers[2] as the key stone of his system of non-directive counselling. This concept is of major importance in education, particularly in the more personal aspects of motivation, attitudes, character formation and adjustment which, in the final analysis, are the foundation upon which school and out of school success must ultimately rest.

The self-concept is best conceived as a system of attitudes toward one self. Just as a person, as a result of experiences forms attitudes which he organizes into a self-consistent system and defends against attack even to the point of disregarding or falsifying the evidence, so the person, also as a result of his experience forms attitudes toward himself.

> "A person's self is the sum total of all that he can call his. The self includes, among other things, a system of ideas, attitudes, values and commitments. The self is person's total subjective environment, it is the distinctive centre of experience and significance. The self-constitutes a person's inner world as distinguished from the outer world consisting of all other people and thing."[3]
>
> "Self-concept is the way one seems himself, the set of characteristics he associates with himself irrespective of particular environment in which he may be at a given moment. An individual self-concept is a set of inferences drawn from self-observations in many different situations. These influences are descriptions of his characteristic behaviour pattern."[4]

According to Jersild[5], the self-concept is "a composite of thoughts and feelings which constitutes a person's awareness of his individual existence, his perception of what he has, his conception of who is he, and his feeling about his characteristics, qualities and properties."

Two configurational aspects of self-feeling comprised of the positive and negative self-regarding attitudes are self-acceptance and self-rejection.

Comparative Studies

Self-concept in an individual develops through learning attitudes, college environment, social factors and his community background. These and other variables play important role in the development of self-concept. Moreover, it is an acquired or learned process through the influence of various variables. A number of researches are available in this field.

Aniloff[6] found that the students who selected academic programme had more positive self-concepts and higher occupational expectations than the students who selected business programme Mullen[7] compared the difference in the self-concept of high school seniors based on type of curriculum (vocational or academic). The findings revealed that vocational education in high school does not affect the development of the self-concept.

Darlington[8] reported that there was no positive change in the self-concept of elementary education majors as a result of physical education clinical experience.

In a comparative study Lall[9] found that there was no significant difference in the self-concept of McKinney Job Corps Graduates and Non-Job Corps Graduates.

Silverman[10] investigated that there were no significant differences among urban, sub-urban and rural learning disabled groups on the total self-concept scores. The urban disabled and urban non-disabled groups were significantly higher than the norming group.

McGough[11] found in a comparative study that there was no significant difference between non-disadvantaged and disadvantaged students when the self-concept was measured by TSCS.

On the basis of self-concept scores, Seaward[12] reported that the cooperative vocational office training students were significantly higher than the intensive business training students. Regular business education students demonstrated significantly higher scores than the intensive business training students but not significantly different froms cooperative vocational training students.

Kelley[13] reported that the Total Positive Self-Concept was not significantly correlated with any of the six career categories selected in his study.

Johnson[14], Flurkey[15] and Grogan[16] reported that the learning environment, whether open space or non-open space, has no differential effect upon the self-concept of the students.

Johnson[17] found that special counselling programme designed in his study would not result in significant improvement in self-concept of potential high school drop-outs. But Hill[18] investigated the effect of a group counselling on self-concept and found that there was statistically significant difference in the self-concept between the experimental group, and the two controlled groups.

Self-Concept and Achievement

Many psychologists have attempted to explain the achievement behaviour in terms of the concepts which the school pupils develop about themselves and the world around. Conceived by Rogers[2] the self-concept theory of behaviour was developed by his student Raimy[19] who attached a perceptual frame of reference to the behaviour. Raimy said that each individual's perception of himself is of ultimate psychological significance in organized behaviour. We act in accordance with our perceptions.

Combs and Snygg[20] who stated that the behaviour should be understood as growing out of the individual subject's frame of reference as, "What a person thinks and how he behaves are largely determined by the concepts he holds about himself and his abilities."

Lecky[1] has perceived a causal relationship between the learning and the self-concept. According to Lecky's perception of one's self in fact is the prim motive in all behaviour. Any value which is "inconsistant with the individual's valuation of himself can not be assimilated", by him. Lecky's theory holds that failure to learn in the school is an attempt on the part of the child to hold the self-concept of stupidity or self-concept of being incapable of learning developed by him.

A similar theory has been sponsored by Jersild[21] who holds that "when a person resists learning that may be beneficial to him, he is, in effect, trying to protect or to shield an unhealthy condition.

But, more broadly speaking, he is not actually protecting some thing unhealthy as such : he is trying to safeguard his picture of himself, his self, concept develops the illusions concerning himself which he has built and which give him much trouble."

Combs[22] emphasized that inadequate perception of self results inadequate performance and failures are largely due to unfortunate attitudes towards educational tasks.

Hatfield[23] also has expressed a similar view in the following words :

> "Adequately functioning personalities see themselves in essentially positive ways. They assume that they are persons that are liked, wanted and loved for their own sake. They become self-confident, self-assured, self-reliant members of society. Self-depreciation results in a falling of effective functioning."

Brookover[24] has formulated that the student learns what fits in his self-concept, what he perceives he is able to learn.

Roth's[25] data indicated that the self concept was not only related to achievement, but the individuals had a 'definite investment to perform'.

Reeder[26] found that children achieve lower in terms of their potential if they have a low self-concept. Stainley[27] reported that a low self-concept is associated with high achievement when high achievement need is present.

Campbell[28] reported that for the students of fourth, fifth, and sixth grade, there was a positive relationship between performance on Coopersmith's Scale for Self-Esteem and achievement scores. Combs[29] states that a 'positive view of self' is one of the characteristics of an effective teacher.

Keith[30] reported in his study that except for one aspect of self-concept, the disadvantaged students perceived themselves in as positive way as did non-disadvantaged, however, the disadvantaged were more defensive, confused, conflicted and uncertain in their self-report.

Divine[31] found in his study that all correlations between self-esteem and measures of reading achievement were positive and highly significant.

Bhatnagar[32] conducted a study to describe the self-concept of bright achievers and non-achievers on the basis of self-concept items which differenciate between the two groups. The findings of this study have revealed that negative self-concept characterises low achievement and positive self-concept adequate achievement.

Raymond,[33] Lekarezyk and Hill[34], and Hardy[35] examined the influence of self-concept played in verbal paired associate learning task for the school students. The results of these studies showed that positive self-concept was significantly related to higher recall achievement.

Trafton[36] conducted a study to analyse the relationship between self-concept and academic achievement in grade one through eight. The findings revealed that academic achievement appears to be causally predominent over both global and academic self-concept.

Singh[37], Lassiter[38], Barnes[39] and Simpson[40] have analysed the relationship between self-concept and achievement for the primary school students. The finding of these researches revealed that there existed significant correlation between academic achievement and self-concept. While Nguyen[41] found that pupils self-report about self-concept revealed negligible relationship with their achievement. Nichols[42] also reported that for 5th grade students there existed no significant correlation between academic achievement and self-concept as measured by the Piers-Harris Children's Self-Concept Scale.

Many investigators such as Nason[43], Brookover, Patterson and Thomas[44], Kurtz and Swenson[45], Payne[46], Davidson and Lang[47], Richards, Cline and Abe[48], Shaw, Edson and Bell[49], Vasanatha[50], Coopersmith[51], and Wylie[52] found a positive relationship between self-concept and achievement of secondary school students. It is found that high achievers in schools possess a feeling of adequacy. In these studies, some investigators have found relatively low correlations between self-concept and achievement, others have found fairly high correlations, comparable with the correlations between aptitude test scores and academic achievement.

On the other hand, Mintz[53] reported in his study that total self-concept was a poor predictor of achievement for the sixth grade students. Bruce and Howard[54] reported that high school students' achievement was not related to their self-concept. At the adolescent level, Smith[55] found that "inferiority feeling" was as common among student with high ability as among students with low ability. In still another study at high school level, Spivack[56] found that there was a zero correlation between academic achievement and self-acceptance.

Studies made by Morgan[57], Holland and Astin[58], and Brim[59] have shown that there existed a significant relationship between self-concept and academic achievement of college students. Bittner[60] found a significant relationship between the self-concept and students teaching performance of selected students in a physical education professional preparation programme. While studies conducted by Saunders[61] and Carey[62] revealed that there was no correlation between self-concept and achievement of the college students. Dean[63] conducted a study on the selected groups of prospective secondary school teachers and found that there was no significant relationship between self-concept and teacher effectiveness.

In summary, except few studies the results of most of the studies show that self-concept is positively associated with the academic achievement.

ATTITUDES

As a concept, an attitude always refers to an individual's or group's more or less stable and observable tendency or predisposition to perform, perceive, think and feel in relation to something specific. Attitudes equips individuals or groups with a ready made frame of reference in accordance with which they judge particular things.

Many psychologists have defined the word "Attitude" in their own way. In simplest sense, an attitude is a dispositional readiness to respond to certain situations, persons, or objects in a consistant manner which has been learned and has become one's typical mode of response. An attitude has a well defined object of reference(s). In other words, the generalised ways of behaving and viewing situations can be termed one's attitude.

On the basis of analysis of the available definitions of attitudes, the main characteristics of attitudes may be summarized as under:

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(1) The range of attitude is not limited.
(2) The attitudes are the roots of the individual behaviour.
(3) The attitude is both overt and covert.
(4) The attitude varies in direction as well as in the intensity or strength.
(5) All attitudes of an individual are integrated into an organized way.
(6) Attitude is not inborn or innate but it is acquired. Therefore attitude differs from culture to culture.
(7) The attitude is lasting and consistent but it can be modified.

Comparative Studies

Sodhi[64] conducted a study on the students of religious and ecular school of Punjab and he found that students of religious schools developed a better attitude toward teachers, parents, life, humanity, country and religion as compared to the students of secular schools.

Wegner[65] conducted a study to measure students attitudes towards school to include five variables of the general school environment: (1) Attitude toward school, (2) Attitude toward education, (3) Attitude toward peers, (4) Attitude toward subjects, and (5) Attitude toward teachers. The analysis of students attitudes by grade level indicated a significant difference in all five sub scale areas.

Hyland[66] conducted a study to compare the effect of organizational placement in two district school organization. Findings of the study reported that students in type A schools scored significantly higher on attitude scale than did students in type B. Jensen[67] found that on the attitude questionnaire, the open classroom groups were consistantly higher on all sub-scales except "authoritarian". The comparison of the combined open classroom groups with the combined traditional classroom groups showed significant difference.

Sharpe[68] investigated that certain designated courses activities were found to be relatively unsuccessful in effecting attitude gain during the management training Lagey[69] concluded that there were no noticeable direct relationship between the content of courses in the curriculum and attitude modification. Ojamann[70] presents the idea that text books and teaching materials do not help in changing attitudes because they do not become to grip with social problems by presenting causes

Thus, some studies indicate that college environment, curriculum, type of institution and background factor play a significant role in the development of student attitudes, while other studies do not support these findings.

Attitudes and Achievement

Many psychologists have attempted to explain the achievement behaviour in terms of the attitudes which the school pupils develop toward the subjects (courses), school, teachers, education, reading, peers and toward himself According to Mouly[3] student can not learn algebra without its having an effect on his attitude toward the subject, toward the other aspects of his environment, and specially toward himself.

A number of investigators such as Baraheni[71], Barrett[72], Bending and Hughes[73], Finger and Schlesser[74], French[75], Passow and Goldberg[76], Wilson and Marrow[77], and Woodman[78] have conducted studies to find out the attitudinal concomitants of scholastic achievement. It has generally found that positive attitudes towards school and college, subjects of study, teachers, etc. are associated with high academic achievement. Rao[79] studied the relationship of intelligence, study habits and attitude toward school which was found to be ·81.

Featherstone[80] found that there was a limited relationship between the attitude toward the course and final grade of university students. McCluskey[81] reported that students' attitudes toward school correlate almost negligibly with student performance, as measured by teachers and standardized tests.

Cooper and Lewis[82] found that achievers and non-achievers had difference in attitudes toward parents. Himmelweit and Summerfield[83] reported difference in attitudes toward future occupations of achievers and non-achievers.

Neale[84] reported that when attitude scores were used as predictors of achievement in mathematics, a low but significant positive correlation was usually found. This was found true in the studies of Evans[85], and Mastantuono[86] at elementry; Kenneth[87], Crosswhite[88], and Spickerman[89] at secondary; Edwards[90], and Fenneman[91] at under graduate and Webb[92] at post graduate levels.

Wethington[93] found that there was significant positive relationship between attitude toward English and English-achievement of high school students.

Miller[94] reported that measurement of attitudes toward reading appeared to have greater predictability of achievement in reading than measurement of I.Q., while Simpson[40] found no significant relationship between attitude toward reading and reading achievement.

Most of the studies, therefore, indicate that students' attitudes are related to their scholastic achievement.

VALUES

The term "Value" may refer to interests, pleasures, likes, preferences, duties, moral obligations, desires, wants, needs, aversions and attractions, and many other modelities of selective orientation.[95] There is no agreement, as to how values are to be defined. The term value has been variously defined as "that which satisfy a human need or a human desire", and as the "quality of things" which evokes some "appreciative responses".

Flink summarized a large number of definitions of values and proposed the following definition.

"Values are normative standards by which human being are influenced in their choice among the alternative courses of action which they perceive."

According to Nunnally[96], values concern preferences for "life goal" and "ways of life" in contrast to interests which concern preferences for particular activities.

Comparative Studies

Values as empirical elements in human behaviour certainly arise out of human experience and hence may be affected by any condition, the condition may be social, political, religious, economic, psychological or educational that affect experience. Values may, therefore, be analysed as dependent variables, subject to changes that are consequent to changes in population, technology, economic production, political organization and so on. Once established, however, values operate as independent variables, serving as basis for further researches and innovations. Hence both types of studies are available in which values are treated dependent as well as independent variables.

A good number of investigators such as Beg[97], Convas[98], Garsee and Glixman[99], Kakkar and Gorden[100], Kibly[101], Glickman and Whol[102], Pourier[103], and Sundberg, Rohila and Tyler[104] have tried to study the cross cultural effect on the values of students. These studies reported some significant differences in the values of students belonging to different cultures. While Bhatnagar[105] found that all the value systems of Indian and British students were fairly similar with social as the dominant motive. Begum and Hafees[106] found no relationship of values with caste and religion. Sharman[107] reported that there were no difference between values of negro and white students. Cameron and Robertson[108] reported that similarities appeared much mark than dissimilarities, in the values between Scot and U.S. children.

Ganguly[109] found that due to the impact of socio-economic and cultural factors the post graduate students revealed a materialistic trend in their values. Gupta[110] found that the students of high S.E.S. differ with respect to educational and personal values, and students from rural areas have high religious and humanistic values, while the urban students have high materialistic values. Gaur[111] also reported significant difference in values of rural and urban students.

Thus, most of these studies have reported significant impact of cultural aud S.E.S. factors on the values of the students, while some studies have not supported these findings.

Singh[112], Bhatnagar[113], Agrawal[114], and Shukla[115] have studied the values of college students. All these studies reported that there were significant differences in the values of students studying in different faculties. Saluza[116] found significant differences in the primary value orientation of business and non-business students. Huntley[117] reported that there was a significant gain on the aesthetic values and corresponding decrease on the religious values during the four years of college for all the curricular groups.

Entwistle[118] found that students of different type of institutions (College of Education, Polytechnics, Language, Pure Science, Applied Science, Mathematics) differed in their values.

Davidson[119] and Gibson[120] compared the value traits of athletes and non-athletes. The findings of these studies revealed that significant differences were found to exist between athletes and non-athletes on the value classification.

Herrick[121] found that there were significant differences between values of students entering in the college of business and the students about to complete college degree.

Some investigators have studied the values of persons in different occupation. Gray[122] studied the occupational values of secondary teachers, accountants and mechanical engineers. Occupational values as measured by OVI yielded significant differences between all three groups. Blass[123] concluded that preferences for specific vocational roles in the rabbinate are significantly related to specific psychological values. Chong[124] studied the value profiles of the six different occupational groups. Tests revealed three terminal and two instrumental values could be used to discriminate between the six different occupational groups. Moore[125] investigated significant differences between the industrial inservice students and their on-compus peers on the scales of values. Bhattacharya[126] administered Super's Work Value Questionnaire to employees in a variety of jobs from sweepers to scientific personnel. Economic return was the lowest and security received the highest importance by all the groups.

Other studies have been conducted to compare the values of students studying in different professions. Lindman[127] reported that classes of engineers differed statistically from the non-professional students on the study of values. Karan[128] found reliable differences among the groups of civil, metallurgical, electrical, chemical and mechanical engineers for all values except theoretical and social. Gee[129] found interesting differences in the major value orientation among the students of medicine choosing the various specialities, with the greatest diversity appearing on the aesthetic and economic scales. In a study of college students specializing in different fields (Science, Humanities, Commerce, Engineering, Medicine, Education, Law, Agriculture and Veterinary) Mathew[130] concluded that significant differences in values existed among college students specializing in different fields The results derived from the study of values conducted by Pal[131] showed that the students preparing for the four professions (Engineering, Medicine, Law and Teaching) revealed some distinguish pattern of values.

Values and Achievement

Value is important in the learning process because it influences selection of the stimuli to which the learner responds, the rapidity of learning, retention of the learned response, and application of the learned materials. Theoretically, one's values must constitute an important source of behavioural motivation. School learning is also an aspect of behaviour. In few researches in India and abroad attempts have been made to analyse the relationship between values and academic performance of the students.

Cattell, Sealey and Sweney[132] made a study on the basis of which they generalized that value patterns operated strongly in the interaction of pupils and teachers and hence it was quite reasonable to think that pupils patterns of values were related to the level of pupils school learning. Walker[133] worked on values and found that the students of high scholastic achievement expressed higher traditional values than those of low scholastic achievement. Thomson[134] revealed that the grades earned by the students appeared to be related to personal values and the students making the highest grades to be those with emergent kinds of values.

Cole and Miller[135] conducted a study on male and female college students and concluded that academic achievement is significantly related to the values of students.

Hapner[136] made an attempt to examine if success and failure of divergent ethic groups can be related to discripencies in values between them and the schools in which they are expected to function. The investigation uncovered significant differences in values between Maxican-American and Anglo-American boys which influence their educational behaviour and achievements. In his comparative study, Gumeson[137] found that high creative group of male scored high social and religious values.

Bellucci[138] revealed that none of the values was significantly related to scores obtained by the trainees in nursing training programmes. Leadership was the only value giving significant correlation with completion of the practical nursing programme.

Soble[139] conducted a study on students' value change and congruency with faculty values in professional education. The findings demonstrated that there was no significant academic differences between students who were congruent and non-congruent with faculty.

In the present study, the researcher has attempted to analyse the relationship of values with achievement of professional and non-professional students.

Conclusion

It is revealed from the review of literature that environmental structure of educational institutions, nature of subject matter, co-curricular activities, social and cultural factors may affect the growth and development of the attitudes, self-concept and values of the students. But research findings are not conclusive. Most of these studies are conducted at school level and very few at college level. There is considerable paucity of reseaches attempting to study the effect of professional education on the students attitudes, self-concepts and values. Hence, the investigator has made an attempt to conduct a comparative study of the attitudes, self-concepts and values of professional and non-professional college students.

On the basis of review, it is also concluded that self-concepts, attitudes and values of students have a relationship with their achievement. There are few studies which present a different picture also. Most of these studies have been conducted at primary and secondary school level. Perhaps, in India no study has so far been conducted to relate these variables to the achievement of professional college students. In the present study, the reseacher has made an attempt to analyse the relationship of these variables with the achievement of professional and non-professional college students.

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3

Methods and Procedures

In this chapter, the design, methods and procedures of the study have been discussed with regard to the following heads :

1. Population
2. Sample
3. Variables Involved
4. Tools used
5. Collection of Data
6. Statistical Techniques used.

The Population

The population of the present study is defined as the final year male students of engineering (B.E.) of Roorkee University, Roorkee, final year male students of medicine (M. B. B. S.) of L.L. R. M. Medical College, Meerut, second semester students of teacher-training (B. Ed.), and the final year male graduate students (B. A. and B. Sc.) of the affiliated colleges of Meerut University.

The Sample

The fourth year male students of engineering from Roorkee University, Roorkee, and fifth year male students of medicine from L. L. R. M. Medical College, Meerut, were included in the sample of the study. Eight institutions affiliated to Meerut University have departments of teacher-education. For the sample of present study, out of eight departments, only four were selected randomly through the lottery system. There were forty-seven non-professional colleges (excluding the girls institutions) affiliated to Meerut University. Since all these non-professional colleges could not be included in the study, it was decided to draw a small but representative sample from the total population of non-professional students. For this purpose, only ten percent non-professional colleges were selected. A random list of all non-professional colleges was prepared and out of this list, five were selected through systematic sampling technique, picking every tenth from the list after having selected the first by putting the finger randomly, with eyes closed, on any of the listed colleges.

In each institution thus selected, sections of students were selected through simple random technique. The unit of the sample, thus, was a "cluster", intact group in the form of a section/department or class. Data, however, were collected from individual students within each cluster. In the present sample the percentages of students taken from different populations differ because the total population of professional college students was very small in comparison to the total population of non-professional col'ege students.

TABLE—I

INSTITUTION-WISE DISTRIBUTION OF STUDENTS

S. No.	Name of Institution	Class	Number of Students
1.	Roorkee University, Roorkee	B.E.	116
2	L.L.R.M. Medical College, Meerut	M.B.B.S.	100
3·	K.V. Degree College, Machhra	B.Ed.	35
4.	N.A.S. College, Meerut	B.Ed.	18
5.	K.L.D.A.V. College, Roorkee	B.Ed.	16
6.	D. Jain College, Baraut	B.Ed.	82
		B.A.	122
		B.Sc.	42
7.	Shri K.K. Jain College, Khatauli	B.A.	54
		B.Sc.	14
8.	N.R.E.C. College, Khurja	B.A.	50
		B.Sc.	39
9.	M.M. Degree College, Khekra	B.A.	78
		B.Sc.	18
10.	J.V. College, Baraut	B.A.	19
		B.Sc.	87
	Total		890

Thus the total sample consisted of 10 institutions and 890 students.

Variables Involved

The variables involved in the study have been described and and explained in the following section.

SELF-CONCEPT

In the present study, self-concept means the perception of professional and non-professional college students of their own qualities and characteristics. Only the following aspects of their perceptions have been covered for the purpose of this study :

1. Perception about their achievement.
2. Perception about their confidence.
3. Perception about their withdrawing tendencies.
4. Perception of their inferiority feelings, and
5. Perception of their feeling of emotional instability.

Thus in the present study, self-concept means the extent to which the professional and non-professional college students perceive themselves to be achievement oriented, confident, suffering from withdrawing tendencies, inferiority feelings and emotional instablity.

VALUES

In the present study, studens values are defined as "what the students think important in life". Six important values have been selected in order to relate them to the students' academic achievement. To measure these six values—personal, religious, educational, materialistic, social and humanistic—a scale of values has been used by the researcher. These values are described as follows:

(1) *The personal values* : This refers to the dominant feelings of hedonism, self-interest, self-development, recreation and show-off.

(2) *The religious values* : This refers to the interest in religious books, religious activities and ritual work. Interest in moral and spiritual development, interest in religious people etc. are also indicative of the religious values.

(3) *The educational values*: The educational values refer primarily to the interest in education. Most of the activities of a person having these values are confined to the narrow field of education. He craves for higher learning and wants to be a good, able and laborious student.

(4) *The materialistic values*: The student having more dominant materialistic values is characteristically interested in 'what is useful in life'. He has a good desire for money and most of his activities are dominated by this desire. He is mainly interested in business, prosperity and accumulating wealth. He wants education to be of practical use.

(5) *The social values*: This refers to love for the people consideration for other persons, to be unselfish, sympathetic and kind to others. A person having dominant social values consider relationship more important. Such a person is interested in social work and social reforms, helping the poor. He also tries to cooperate with others.

(6) *The humanistic values*: This refers to love for humanity, helping the needy, to be kind hearted, sympathetic, sacrificing and others oriented.

ATTITUDES

An attitude has been defined as "the degree of positive or negative affect associated with some psychological object."[1]

In the literature of psychology, the terms affect and feeling are used interchangeably. An individual who has associated positive affect or feeling with some psychological object is said to like that object or to have a favourable attitude toward the object. An individual who has associated negative affect with some psychological object would be said to dislike that object or to have an unfavourable attitude toward that object.

The researcher has constructed his own scale for the measurement of students' attitudes. Only four dimensions of students attitudes have been covered for the purpose of this study.

1. Attitudes toward education
2. Attitudes toward family
3. Attitudes toward teachers
4. Attitudes toward society.

ACADEMIC ACHIEVEMENT

Finding out a dependable and reliable criteria of academic achievement has been a puzzling problem for every researcher in this area. Achievement tests in different subjects and for all levels are not available. Moreover, facilities were not available for administration of too many tests, nor would the students have agreed to spare so much of their time for that purpose. Hence, it was decided to use the final examination marks as the criterion of academic achievement.

Tools Used

A detailed description of the tools used in this study has been presented in the following section.

MEASUREMENT OF SELF-CONCEPT

Self-concepts were defined as the perceptions of the students about their own personality qualities. To measure them, Bhatnagar's Self-concept Inventory was used. This is the tool that has been used by several researchers[2-5] in their investigations. A brief description of this tool is presented below :

BHATNAGAR'S SELF-CONCEPT INVENTORY

It contains 57 items, each of which has two self-descriptive statements paired together in a forced choice format (AB). Each of the two statements contained in each item measures either of the five aspects of the global self-concept. These are known as : A-Achievement, C-Confidence, W-Withdrawal, I-Inferiority, and E-Emotional Instability.

(i) Achievement means how good an achiever one perceives himself in life.

(ii) Confidence means how confident one perceives himself to be.

(iii) Withdrawal means the extent to which one feels he suffers from feeling of withdrawal and tendencies to escape from the situations of life.

(iv) Inferiority feeling means the extent to which one feels he suffers from inferiority feelings.

(v) Emotional instability means the extent to which one feels he suffers from the feeling of emotional instability.

The examinee is asked to record the responses to all the 57 items by putting numerical scores against the chosen statements, preferring it to the other according to the author's scheme, either as 0–3 or as 1–2. Responses are recorded on a separate sheet. Though there is no time limit, it take on an average 30 to 35 minutes to administer the test.

MEASUREMENT OF VALUES

The researcher had assumed, as stated in the first chapter that the values of the students affect their learning behaviour and consequently their academic achievement. Schools and colleges no longer confine themselves to the preservation of traditional values. They are increasingly concerned now, with the transmission of modern and democratic values with a view to creating a technological society. Hence, one of the aims of the present study was to know what types of values our students held in this fast changing world. There are several value tests available in the field of psychology and education. 'Allport Vernon and Lindzey study of Values' is one of the most important and reliable tests. This test measures six important values—theoretical, political, aesthetic, social, economic and religious. One of the main objectives of the present study was to study the educational and personal values. The Allport Vernon and Lindzey test did not have these values. Hence, the researcher selected the value test constructed by Agrawal.[6] This test measures the educational and personal values alongwith religious, social, materialistic and humanistic values. The test is titled as "Meri Manyatayen".

MERI MANYATAYEN

'Mery Manyatayen' measures relative prominence of six basic interests or motives i.e. personal, religious, educational, materialistic, social and humanistic. The explanation of these values has been given already in the section of 'The Variables Involved'.

The test is prepared in Hindi. It contains sixty paired items representing a variety of familiar situations. In all there are 120 statements, each 20 of which measure each of the six values.

The subject records his response by putting a weight against the item selected. The weights and scores on each page are added and totals are transcribed on the score sheet. The page totals belonging to each page of the six values are then summed up. Further details of this test are give in the original thesis.

MEASUREMENT OF ATTITUDES

The tool constructed and used for measuring attitudes is named 'College Student Attitude Inventory'. In the first instance, it was considered to determine the dimensions of this attitude inventory. To develop insight into this, a study of various available tools was thought to be essential. After having reviewed the tools, the dimensions for 'College Student Attitude Inventory' were determined with the consultation of supervisor and other experts. Hence, the attitudes were defined for the purpose of this study in terms of these dimensions The foregoing four dimensions of students' attitudes have been covered in this study. The procedure followed in the construction of this scale has been described in detail in the original thesis.

In all, there are sixty four statements in this inventory. Sixteen statements on each page measure one of the four dimensions of attitudes. All the odd number statements are favourable and all the even number statements are unfavourable. The scoring is done by Likert method In obtaining the responses from the subjects, they were asked to use any one of the five categories : Strongly agree, Agree, Undecided, Disagree or Strongly disagree for each statement. The details regarding the administration of the test, scoring and interpretation of the test-scores have been given in the original thesis.

The Collection of Data

The subjects of this study were selected from the prescribed population. Names of institutions, number of subjects and the classes from which the samples were drawn have already been given in table-1. The principals of these institutions were approached one by one and the objectives of this study were explained. All the principals provided the facilities for collection of data.

The selected students were administered three inventories, namely, 'College Student Attitude Inventory', 'Mery Manyatayen' and 'A Study of Self-Concept' in the classes of their respective colleges. The subjects were requested to answer the questions sincerely and truthfully. They were assured that the responses would be kept strictly confidential.

After administering the tools the response sheets of each subject were scored according to the instructions given for the scoring procedure. Details of the scoring procedures have been given in the descriptions of the tools used, in the original thesis.

The marks and divisions obtained in the final examination were recorded from the result sheets of the students.

Statistical Technique Used

The first purpose of this study was to compare the attitudes, self-concept and values of professional and non-professional students. The data obtained on various dimensions of self-concept, values and attitude scales were tabulated separately into frequency distributions. Mean scores and standard deviations of each group on various dimensions of these variables were calculated. Profiles for different groups were prepared on the basis of mean scores and plotted in figures to give a comparative picture.

Frequency distributions for all the groups were approximately normal. Hence the comparison between different groups was made on the basis of the t-test with 0·05 and 0·01 levels of confidence considered significant. Hypotheses, from No. 1 to 6, were tested by applying two tailed t-test.

Another purpose of this study was to analyse the relationship of self-concept, attitudes and values with the academic achievement of the students. The criterion for academic achievement was the marks obtained in the examinations. The marks of the students were not normally distributed. The marks were divided into divisions on the basis of percentage.

In order to ascertain the relationship between academic achievement and different variables product-moment correlation was prescribed in the synopsis. Since the distributions of the marks obtained by the students were not symmetrical, hence product-moment correlation could not be used. The technique of Chi-square was applied to find out the relationship between different variables and academic achievement of the students. The technique of Chi-square was used to test the hypothesis No. 7, 8 and 9. The technique of Chi-square was applied by preparing 3×2 contingency table for different variables. The achievement scores were split into three classes on the basis of division. The scores on different dimensions of attitudes, values and self-concept variables were divided into two categories, using median as the cut-off point. The obtained Chi-square values were converted into coefficient of contingency (C's). The equation of Chi-square is stated as follows :

$$X^2 = \Sigma \left(\frac{(fo-fe)^2}{fe} \right)$$

(Chi-square formula for testing agreement between observed and expected results.)

In which

fo=frequency of occurrence of observed or experimentally determined facts.

fe=expected frequency of occurrence on some hypothesis.

The differences between observed and expected frequencies are squared and divided by the expected number in each case, and the sum of these quotients is X^2.

The degrees of freedom were calculated as follows :

$$df=(r-1)(c-1)$$

In which r is the number of rows and c the number of columns in which the data are tabulated.

The contingency coefficient (C), provides a measure of correlation when each of the two variables under study have been classified into two or more categories. In the present study C is calculated by the following formula :[7]

$$C=\sqrt{\frac{X^2}{N+X^2}}$$

where, N is the total number of frequency.

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4

The Data : Its Analysis and Findings

This chapter presents the data, its analysis, interpretation and results. The whole study attempted to answer the following questions :

1. Is there any significant difference between the self-concept of professional and non-professional college students.
2. Do the engineering, medical and teacher training students differ among themselves with regard to their self-concept.
3. Is there any significant difference between the attitudes of professional and non-professional college students.
4. Do the engineering, medical and teacher training students differ among themselves with regard to their attitudes.
5. Is there any significant difference between the values of professional and non-professional college students.
6. Do the engineering, medical and teacher training students differ among themselves with regard to their values.
7. Is there any relationship between students' self-concept and achievement.
8. Is there any relationship between students' attitudes and achievement.
9. Is there any relationship between students' values and achievement.

The results have been presented according to the following scheme. A mention of this may facilitate to understand the whole view of the work done.

Part-A

(a) Comparison of professional and non-professional students on self-concepts.

(b) Inter-group comparison of professional students on self-concepts.

Part-B

(a) Comparison of Professional and non-professional students on attitudes.

(b) Inter-group comparison of professional students on attitudes.

Part-C

(a) Comparison of professional and non-professional students on values.

(b) Inter-group comparison of professional students on values.

Part-D

(a) Relationship between students' self concepts and achievement.

(b) Relationship between students' attitudes and achievement.

(c) Relationship between students' values and achievement.

The data, its analysis and findings are presented hypothesis-wise.

PART A

COMPARISON OF PROFESSIONAL AND NON-PROFESSIONAL STUDENTS ON SELF-CONCEPTS

In this section an attempt has been made to find out the difference between the self-concept of professional and non-professional students. The researcher has also attempted to compare the self-concept of students in three professions, namely engineering, medicine and teaching. In order to measure the self-concept of students, the researcher has used 'A Study of Self Concept' constructed by Bhatnagar.[1]

Hypothesis-I

The first hypothesis was that "there is significant difference in self-concept of professional and non professional college students." The objective of this hypothesis was to find out how the self-concepts of professional students differ from the self-concepts of non-professional students.

In order to arrive at some definite conclusions in this regard comparisons were made between the professional and non-professional students on five dimensional self-concept scale. The scores obtained by professional and non-professional students on five dimensions of self-concept scale were tabulated separately into frequency distributions. Mean scores and standard deviations for each dimension of self concept were calculated. To test the hypothesis of no difference (H_0) two tailed *t*-test was applied. Mean scores. S. D. and C. R. values obtained for each dimension with their level of significance are presented in the following table :

TABLE II

MEAN, S. D. AND C. R. VALUES ON SELF-CONCEPTS OF PROFESSIONAL AND NON-PROFESSIONAL STUDENTS

S. No.	Self-Concepts	Professional Students N	Mean	S.D.	Non-Professional Students N	Mean	S.D.	C.R.	P
1.	Achievement	367	32·41	4·53	523	32·34	4·58	0·22	0·01
2.	Confidence	367	34·01	5·24	523	32·11	4·95	5·53	0·01
3,	Withdrawal	367	38·21	4·66	523	38·83	4·91	1·88	NS
4.	Inferiority feeling	367	29·15	5·95	523	31·53	5·52	6·05	0·01
5.	Emotional instability	367	37·45	4·19	523	36·21	4·95	4·13	0·01

It may be said on the basis of Table II that the structure and organization of the self-concepts of professional and non-professional students are different from one another. On three out of five aspects of self-concept, there are found to be significant differences between the mean scores of professional and non-professional students. The mean scores of professional students are significantly higher on confidence and emotional instability. The mean scores of non-professional students as compared to professional students are higher on inferiority feeling. The C. R. values on self-concept scale are 0·22, 5·53, 1·88, 6 05 and 4·13.

This may mean that in comparison to non-professional students, professional students perceive themselves to be more confident. Also, it is found that they perceive themselves to be persons who suffer more from feelings of emotional instability. The non-professionl students exhibited higher mean score on inferiority feeling, hence in comparison to professional students, non-professional students perceive themselves to be inferior. The professional students yielded higher mean score on achievement, while non-professional students exhibited higher mean score on withdrawal but the two group did not differ significantly on these two dimensions of self-concept.

On Indian population, there seems to be no research precedence, particularly related to the present problems. In a comparative study Mullen[2] found that analysis of sub-scores of TSCS revealed significant difference between vocational and academic high school seniors. But in his comparative study Lall[3] found that there was no significant difference in the self-concept of Job. Corps and Non-Job Corps Graduates. Hence, it needs further probing through a number of replication of such studies to arrive at some definite conclusions.

Self-Concept Profiles of Students in the Professions of Engineering, Medicine and Teaching

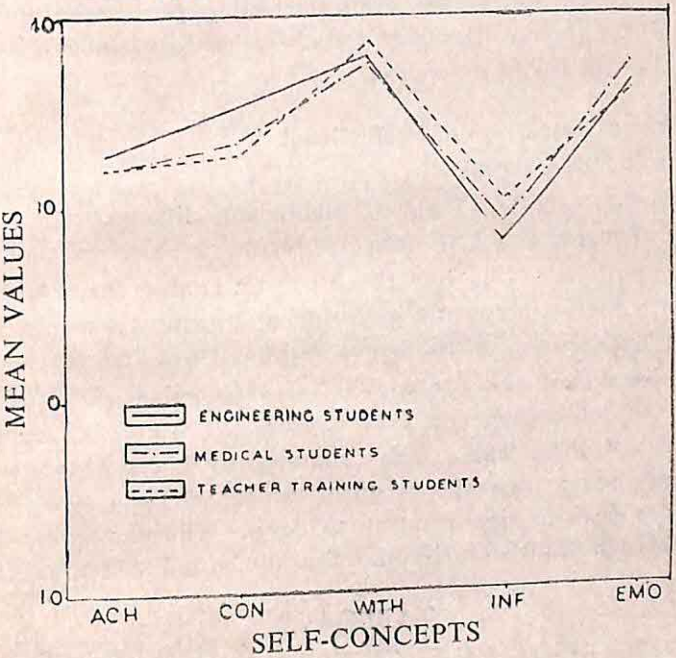
The scores obtained by engineering, medical and teacher-training students on five dimensions of self-concept scale were tabulated separately into frequency distributions. Mean scores and S.D. for each dimension of self-concept were calculated.

TABLE–III

THE MEAN SCORES OF ENGINEERING, MEDICAL AND TEACHER-TRAINING STUDENTS ON A STUDY OF SELF-CONCEPT

S. No.	Self-concepts	Engineering students	Medical students	Teacher training students
1.	Achievement	32·98	32·14	32·15
2.	Confidence	35·50	33·78	33·02
3·	Withdrawal	38·02	37·62	38·75
4.	Inferiority feeling	28·12	29·42	30·56
5.	Emotional instability	36·47	37·74	36·15

Fig. 1 gives a comparative picture of self-concept profiles of the three professional groups under consideration.



SELF-CONCEPT PROFILES OF ENGINEERING, MEDICAL AND TEACHER-TRAINING STUDENTS

Fig. 1

The mean self-concept scores of engineering, medical and teacher-training students are plotted in figure 1. It may be noted that there is overlapping on some of the scales. The distribution of withdrawal and emotional instability variables of all the three groups cluster more towards the higher side of the scale, while the distribution of inferiority feeling is inclined towards the lower side. All the three groups show a slight elevation of the withdrawal scale indicating feelings of withdrawal and tendencies to escape from situations of life, the student-teachers showing them more than the other two groups. On the confidence scale the engineering students show marked elevation, reflecting a feeling of more confidence in life situations than the other two groups. The trend of all the three curves is similar on emotional instability, with a slight depression in case of engineering students. On achievement scale engineering students show a slight elevation, indicating that they perceive themselves better achievers in life than the other two groups. On the scale of inferiority feeling, the engineering students show a marked depression, reflecting that the other two groups suffer more from the feelings of inferiority than they. These findings have been tested further for significance and reported in the following section.

Inter Group Comparison of Professional Students on Self-Concepts

Hypothesls–2 (a): There is significant difference in self-concept of engineering and medical students.

The purpose of this hypothesis was to analyse the difference between the self-concept of engineering and medical students. To test the hypothesis of no difference (H_0) *t*-test was applied.

The results of the comparison of engineering and medical students on self-concept are given in Table IV. It may be observed that engineering students yielded significantly higher score on the confidence scale than the medical students. The difference on confidence scale is significant at ·05 level. The two groups did not differ significantly on the other four dimensions of self-concept.

TABLE–IV

COMPARISON OF ENGINEERING AND MEDICAL STUDENTS ON 'A STUDY OF SELF-CONCEPT'

S. No.	Self-Concepts	Engineering students N	Mean	S.D.	Medical students N	Mean	S.D.	O.R.	P
1.	Achievement	116	32 98	5·52	100	32·14	4·24	1·26	NS
2.	Confidence	116	35·50	5·19	100	33·78	5·52	2 36	0·05
3.	Withdrawal	116	38·02	5·19	100	37·62	4·32	0·62	NS
4.	Inferiority feeling	116	28·12	6·48	100	29·42	5·12	1·64	NS
5.	Emotional instability	116	36 47	4·93	100	37·74	4·93	1·90	NS

On the basis of results of Table–IV it may be said that engineering students perceive themselves to be more confident in life situations than medical students. These two groups do not differ significantly on achievement, withdrawal, inferiority feeling and emotional instability dimensions of self-concept

Hypothesis–2(b) : There is significant difference in self-concept of engineering and teacher-training students.

The purpose of this hypothesis was to find out the difference between the self-concept of engineering and teacher-training students. To test the hypothesis of no difference (H_0) *t*-test was applied with 0·01 and 0·05 level of significance.

TABLE–V

MEAN, S.D. AND C.R. VALUES OF ENGINEERING AND TEACHER-TRAINING STUDENTS ON SELF-CONCEPTS

S. No.	Self Concepts	Engineering students N	Mean	S.D.	Teacher-Trg. students N	Mean	S.D.	C.R.	P
1.	Achievement	116	32·98	5·52	151	32·15	3·77	1·41	NS
2.	Confidence	116	35·50	5·19	151	33·02	4·83	4·00	0·01
3.	Withdrawal	116	38·02	5·19	151	38·75	4·37	1·24	NS
4.	Inferiority feeling	116	28·12	6·48	151	30·56	4·84	3·39	0·01
5.	Emotional instability	116	36·47	4·93	151	36·15	4·41	0·55	NS

A comparison of engineering and teacher-training students on 'A Study of Self-Concept' is shown in Table V. The engineering students yielded significantly higher score on confidence scale than the teacher-training students, while the teacher-training students exhibited significantly higher score on the inferiority feeling The differences between these two groups on these two dimensions of self-concept are significant at 0·01 level. The two groups do not differ significantly on the other three dimensions of self-concept. Hence Hypothesis 2(b) is retained on confidence and inferiority dimensions and rejected on achievement, withdrawal and emotional instability dimensions of self-concept.

The results of Table–V reveal that the engineering students are more confident in situations of life than the teacher-training students. It is also found that teacher-training students perceive themselves as suffering more from the feeling of inferiority than the engineering students. In other words the engineering students perceive themselves to be superior to the teacher-training students.

Hypothesis 2(*c*) : There is significant difference in self-concept of medical and teacher training students.

The purpose of this hypothesis was to analyse the differences between the self concept of medical and teacher-training students. This hypothesis was also tested on the basis of *t* test.

TABLE–VI

MEAN, S.D. AND C.R VALUES ON SELF-CONCEPTS OF MEDICAL AND TEACHER-TRAINING STUDENTS

S. No.	Self-Concepts	Medical students N	Medical students Mean	Medical students S.D.	Teacher Trg. students N	Teacher Trg. students Mean	Teacher Trg. students S.D.	C.R.	P
1.	Achievement	100	32·14	4·24	151	32·15	3·77	0·02	NS
2.	Confidence	100	33·78	5·52	151	33·02	4·83	1·13	NS
3.	Withdrawal	100	37·62	4·32	151	38·75	4·37	1·98	0·05
4.	Inferiority feeling	100	29·42	5·12	151	30·56	4·84	1·75	NS
5.	Emotional instability	100	37·74	4·93	151	36·15	4·41	2·61	0·01

The mean scores, **S. D.** and C. R. values of medical and teacher training students on 'A Study of Self-Concept' are shown in Table VI. It may be observed that medical students exhibited significantly higher score on emotional instability that the teacher-training students, while the teacher-training students yielded significantly higher score on withdrawal scale. The difference in emotional instability is significant at 0·01 level, while the difference in withdrawal is significant at 0·05 level. The two groups did not differ significantly on other three variables Hence the hypothesis-2(c) is accepted for withdrawal and emotional instability dimensions and rejected for achievement, confidence and inferiority dimensions.

The results of Table VI report that teacher-training students perceive themselves as suffering more from the feeling of withdrawal and tendencies to escape from the situations of life than the medical college students, while the medical college students perceive themselves as suffering more from the feeling of emotional instability than the teacher-training students.

SUMMARY OF FINDINGS OF PART A

The analysis of data reported in Table II revealed that professional and non-professional students differ significantly on confidence, inferiority feeling and emotional instability scales of self-concept. Professional students yielded higher scores on confidence scale, indicating that they perceive themselves to be, perhaps, more confident in life situations than the non-professional students. It may be stated here that the problem of unemployment may be the reason of the non-professional students perceiving themselves to be less confident. The non-professional students yielded higher score on inferiority feeling scale of self-concept. Hence, it may be said that they suffer more from inferiority feeling than the professional students. On the scale of emotional instability the professional students exhibited higher score, while on the scale of withdrawal and achievement the two groups did not differ significantly.

The analysis of data reported in Table III has revealed that engineering students and medical students, engineering students and student-teachers, and medical students and student-teachers differ on one or more measures of self-concept.

On achievement scale all the three groups yielded approximately the same mean score and they did not differ significantly. Thus they are alike in perceiving themselves as achievers in life.

On confidence scale the engineering students obtained the highest mean score and they differ significantly from the medical students and the student-teachers. Hence engineering students perceive themselves to be more confident than medical college students and student-teachers.

On withdrawal dimension of self-concept the student-teachers yielded highest mean score, while medical students yielded lowest mean score and these two groups differ significantly on this dimension of self-concept. On withdrawal dimension the engineering students did not differ significantly from the other two groups. Thus student-teachers suffer more from feeling of withdrawal and tendencies to escape from situations of life than the medical students.

The student-teachers yielded highest mean score on inferiority feeling dimension and they differ significantly from the engineering students. Thus student-teachers suffer more from the feeling of inferiority. The feeling of superiority in engineering students is natural because their profession enjoys a higher status and prestige in the society and also gets higher emoluments than teaching profession does.

The medical students yielded highest mean score on emotional instability dimension and they differ significantly in this regard from the student-teachers. Thus the medical students suffer more from the feeling of emotional instability than the other two groups.

PART B

COMPARISON OF PROFESSIONAL AND NON-PROFESSIONAL STUDENTS ON ATTITUDES

In this section an attempt has been made to study and compare the attitudes of professional and non-professional students. The researcher has also attempted to compare the attitudes of students in three professions, namely, engineering, medicine and teaching. To study the attitudes of students, the researcher has constructed 'College Student Attitude Inventory'. A brief description of this inventory has been given in Chapter III of the original thesis.

Hypothesis 3 : The third hypothesis of this study was that "there is significant difference in the attitudes of professional and non-professional students".

The objective of this hypothesis was to find out how the attitudes of professional students differ from the attitudes of non-professional students.

In order to test this hypothesis the attitude scores of professional and non-professional students on the four scales, namely, attitude towards education, attitude towards teachers, attitude towards family, and attitude towards society were tabulated separately into frequency distributions. Mean scores and standard deviations were calculated. Differences between these groups were tested on the basis of *t*-test with 0·05 level and 0·01 level of confidence for significance.

TABLE–VII

MEAN, S.D. AND C.R. VALUES OF PROFESSIONAL AND NON-PROFESSIONAL STUDENTS ON 'COLLEGE STUDENT ATTITUDE INVENTORY'

S. No.	Scale	Professional students		Non-Professional students		*t*	P
		Mean	S.D.	Mean	S.D.		
1.	Attitude toward Education	40·16	7·05	39·98	7·24	0·37	NS
2.	Attitude toward Teachers	35·75	9·99	41·34	9·39	8·42	0·01
3.	Attitude toward Family	48·04	9·18	46·93	8·58	1·82	NS
4.	Attitude toward Society	30·54	7·56	31·79	7·72	2·40	0·05

The mean scores of professional and non-professional college students on 'College Student Attitude Inventory' are shown in Table VII. It may be observed that non-professional students exhibited significantly higher scores on the scales of attitude toward teachers and society. On the scale of attitude towards teachers the difference between the two groups was found to be significant at 0·01 level and on the scale of attitude towards society the difference was found to be significant at 0·05 level. The two groups did not differ significantly on the other two scales. Thus hypothesis-3, that there is significant difference in attitudes of professional and non-professional students is retained with regard to the foregoing two aspects.

The results of Table VII reveal that the professional students differ from non-professional students with regard to their attitude toward teachers and society. The non-professional students have more positive attitude toward their teachers than the professional students. It is also found that non-professional students have more positive attitude toward society than the professional students.

On the basis of these results it may be concluded that the professional college students have less favourable feelings toward their teachers and society. Perhaps, the authoritarian behaviour of, and high subjectivity in internal assessment by, the professional college teachers may be the cause of dissatisfaction among the professional college students.

Attitude Profiles of Students in the Profession of Engineering, Medicine and Teaching

The scores obtained by engineering, medical and teacher-training students on four dimensions of attitudes were tabulated separately into frequency distributions. Mean scores and standard deviations for each dimension of attitudes were calculated.

TABLE–VIII

THE MEAN SCORES OF ENGINEERING, MEDICAL AND TEACHER TRAINING STUDENTS ON 'COLLEGE STUDENT ATTITUDE INVENTORY'

S. No.	Scale	Engineering students	Medical students	Student-teachers
		Mean score	Mean score	Mean score
1.	Attitude toward Education	40·71	40·85	39·28
2.	Attitude toward Teachers	33·57	31·74	40·11
3.	Attitude toward Family	50·88	50·15	43·46
4.	Attitude toward Society	30·79	31·45	29·55

Fig. 2 gives a comparative picture of the attitude profiles of the three professional groups under consideration.

ATTITUDE PROFILES OF ENGINEERING, MEDICAL AND TEACHER TRAINING STUDENTS

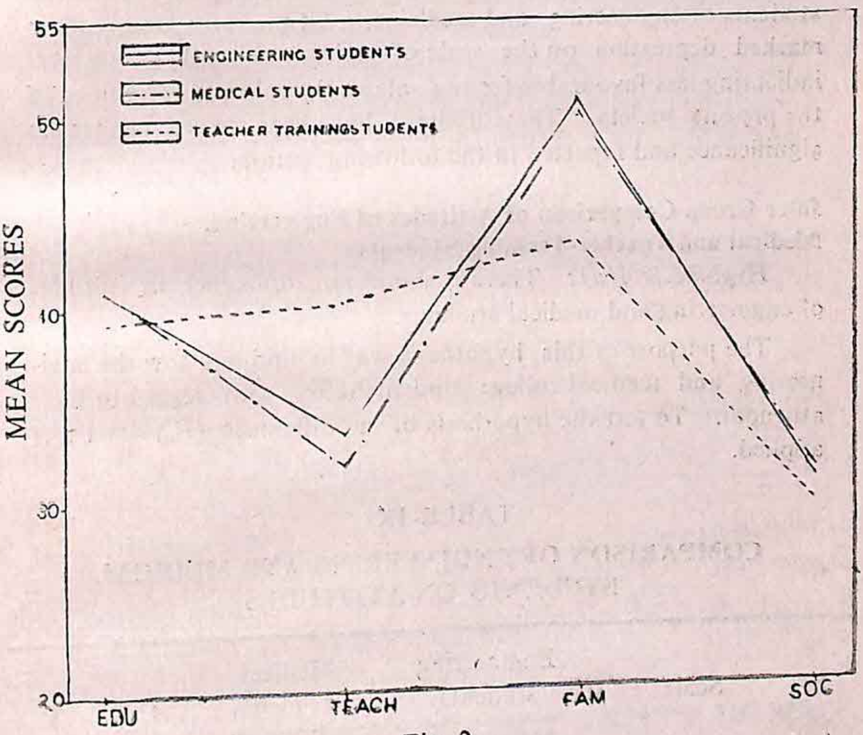


Fig. 2

The mean attitude scores of engineering, medical and teacher-training students are plotted in fig. 2. The distribution of attitudes toward family of all the three groups cluster more towards the higher side of the scale, while the distribution of attitudes toward society cluster more towards the lower side. All the three groups show elevation on the scale of family indicating favourable attitudes towards their parents, siblings and family environment, the student-teachers showing less favourable attitudes than the other two groups.

The trend of all the three curves is similar on the scale of attitude toward education with a slight depression in case of student-teachers, indicating less favourable feeling toward higher education and learning than the other two groups On the scale of attitude toward teachers the student-teachers show marked elevation, reflecting more favourable response toward the behaviour, methods of teaching and evaluation of their teachers than the students of engineering and medicine. All the three groups show marked depression on the scale of attitude toward the society, indicating less favourable feeling about the role and conditions of the present society. These findings have been tested further for significance and reported in the following section.

Inter Group Comparison of Attitudes of Engineering, Medical and Teacher-Training Students

Hypothesis 4(a): There is significant difference in attitudes of engineering and medical students.

The purpose of this hypothesis was to find out how the engineering and medical college students differ with regard to their attitudes. To test the hypothesis of no difference (H_0) t-test was applied.

TABLE–IX

COMPARISON OF ENGINEERING AND MEDICAL STUDENTS ON ATTITUDES

S. No.	Scale	Engineering students		Medical students		C.R.	P
		Mean	S.D.	Mean	S.D.		
1.	Attitude toward Education	40·71	7·88	40·85	7·28	0·14	NS
2.	Attitude toward teachers	33·57	9·55	31·74	10·02	1·37	NS
3.	Attitude toward Family	50·88	7·83	50·15	8·18	0·66	NS
4.	Attitude toward Society	30·79	7·95	31·45	7·03	0·65	NS

The results of the comparison of engineering and medical students on 'College Student Attitude Inventory' are shown in

Table–IX. It is interesting to note that no significant difference was found between the two groups on the four attitude scales. This shows th t the two groups are alike in their attitude orientation. Hence hypothesis 4(a) is rejected.

Hypothesis 4(b): There is significant difference in attitudes of engineering and teacher-training students.

The objective of this hypothesis was to find out the difference between the attitudes of engineering and teacher-training students. This hypothesis was also tested on the basis of *t*-test with 0·01 and 0·05 levels of significance.

TABLE–X

COMPARISON OF ENGINEERING STUDENTS AND STUDENT-TEACHERS ON ATTITUDES

S. No.	Scale	Engineering students		Teacher Trg. students		C.R.	P
		Mean	S.D.	Mean	S.D.		
1.	Attitude toward Education	40·71	7·88	39·28	6·06	1·63	NS
2.	Attitude toward Teachers	33·57	9·55	40·11	8·51	5·79	0·01
3.	Attitude toward Family	50·88	7·83	43·46	8·96	7·20	0·01
4.	Attitude toward Society	30·79	7·95	29·55	7·91	1·28	NS

The mean scores of engineering and teacher-training students on 'College Student Attitude Inventory' are shown in Table-X. It may be observed that the engineering students exhibited significantly higher scores on the scale of attitude toward family than the student-teachers, while the student-teachers yielded significantly higher score on the scale of attitude toward the teachers. In the case of attitude toward education and society the differences between the two groups were not significant. Thus the hypothesis 4(b), that there is significant difference in attitudes of engineering and teacher-training students is retained with regard to attitude toward teachers and family.

On the basis of these results it may be concluded that the engineering college students have more favourable feeling toward their family and less favourable feeling toward their teachers than the teacher-training students. The engineering college students come from more highly educated and more prosperous families than the teacher-training students. Perhaps, due to good family conditions, the engineering college students may possess more favourable attitudes toward their families than the teacher-training students.

Hypothesis 4(c): There is significant difference in attitudes of medical and teacher-training students.

This hypothesis was also tested on the basis of *t*-test.

TABLE–XI

COMPARISON OF MEDICAL AND TEACHER-TRAINING STUDENTS ON ATTITUDES

S. No.	Scale	Medical students Mean	Medical students S.D.	Student-teachers Mean	Student-teachers S.D.	C.R.	P
1.	Attitude toward Education	40·85	7·28	39·28	6·06	1·78	NS
2.	Attitude toward Teachers	31·74	10·02	40·11	8·51	6·86	0·01
3.	Attitude toward Family	50·15	8·18	43·46	8·96	6·08	0·01
4.	Attitude toward Society	31·45	7·03	29·55	7·91	2·00	0·05

A comparison of medical and teacher-training students on 'College Student Attitude Inventory' is shown in Table-XI. It may be noted that these two groups differed significantly on three scales, namely, attitude toward teachers, family and society. Student-teachers obtained significantly higher mean score on the scale of attitude toward teachers than the medical students. The medical students yielded significantly higher mean scores on the scales of attitude toward family and society. The differences between the two groups on attitude toward teachers and family were found to be significant at 0·01 level, while in the case of attitude toward society the difference was found to be significant at 0·05 level. The two groups did not differ significantly on the scale of attitude toward education. Hence the hypothesis 4(c), that there is significant difference in attitudes of medical and teacher-training students is accepted with regard to the foregoing three aspects.

The results of Table-XI reveal that medical college students show more favourable responses toward their families and society than the teacher-training students. While the teacher-training students have more positive attitudes towards their teachers than the medical college students. The authoritarian behaviour of, and high subjectivity in the internal assessment by, the medical college teachers may be the cause of medical students' unfavourable responses toward their teachers.

SUMMARY OF FINDINGS OF PART B

The analysis of data reported in Table-VII has revealed that professional and non-professional students differ on attitude toward teachers and attitude toward society scales. These two groups differed significantly on these two scales. The professional students have more positive attitude toward society than the non-professional students, while the non-professional students have more positive attitude toward their teachers. These two groups did not differ significantly on the other two scales, namely, attitude toward education and attitude toward family.

The analysis of data reported in Table-IX has revealed that engineering students and medical students did not differ significantly on 'College Student Attitude Inventory'. These two groups differ significantly from student-teachers on two or more dimensions of 'College Student Attitude Inventory'. The engineering students showed more favourable attitudes towards their family than the student-teachers, while the student-teachers indicated more positive attitudes towards their teachers than the engineering students. The student-teachers differ significantly from medical students on attitude toward teachers scale. The students teachers have yielded highest mean score, while the medical students yielded lowest mean score on attitude toward teachers scale. The medical students exhibited significantly higher score on attitude toward family and society. On attitude toward family the engineering students yielded highest mean score while the student teachers yielded lowest mean score. Thus the engineering and medical students indicated more favourable attitudes toward their family than the student-teachers.

PART C

COMPARISON OF PROFESSIONAL AND NON-PROFESSIONAL STUDENTS ON VALUES

In this section an attempt has been made to study and compare the values of professional and non-professional college students. The researcher has also attempted to compare the values of students in three professions, namely, engineering, medicine and teaching. Samler[4] remarked, "Values should be subject to explicit examination, as criteria for choice, as determinants of behaviour". To study the values of students a test of values 'Mery Manyatayen' constructed by Agrawal[5] has been used. A brief description of this test is given in Chapter III of the original thesis.

Hypothesis 5—There is significant difference in values of professional and non-professional students.

The objective of this hypothesis was to find out how the values of professional students differ from the values of non-professional students. In order to test this hypothesis comparisons were made between professional and non-professional students on 'Mery Manyatayen' i.e. 'My Values'. The scores obtained by professional and non-professional students on six values, namely personal, religious, educational, materialistic, social and humanistic were tabulated separately into frequency distributions. Mean scores and standard deviations for each group on six scales were calculated. Comparison between the two groups were made on the basis of the *t*-test with 0·05 level and 0·01 level of confidence for significance.

TABLE–XII

COMPARISON OF PROFESSIONAL AND NON-PROFESSIONAL STUDENTS ON VALUES

S. No.	Values	Professional students N	Mean	S.D.	Non-professional students N	Mean	S.D.	t	P
1.	Personal	367	25·90	6·71	523	21·42	5·38	10·67	0·01
2.	Religious	367	23·43	7·99	523	27·16	6·61	7·46	0·01
3.	Educational	367	36·38	4·81	523	36·54	4·20	0·53	NS
4.	Materialistic	367	24·97	6·37	523	23·78	6·41	2·74	0·01
5.	Social	367	34·18	4·68	523	33·82	4·51	1·16	NS
6.	Humanistic	367	35·03	7·08	523	37·31	5·04	5·18	0·01

The Table-XII shows that professional students placed high esteem on the educational, the humanistic and the social values respectively. The non-professional students ranked the humanistic, the educational and the social as their values of high importance. The lowest value score by the professional students was for the religious, while the lowest score by the non-professional students was for the personal value.

Table–XII shows the results of the application of *t*-test for the differences obtained by professional and non-professional students on values. It may be noted that professional students yielded significantly higher values on personal and materialistic scales, while the non-professional students indicated significantly higher values on religious and humanistic scales. In all these four values the differences between the two groups were found to be significant at ·01 level of confidence. The two groups did not differ significantly in educational and social values. Hence hypothesis-5 "there is significant difference in values of professional and non-professional students" is retained with regard to foregoing four values.

The results of Table–XII reveal that professional students possess higher personal values, indicating that they have more dominant feelings of hedonism, self-interest and self-development in comparison to non-professional students. The professional students also have higher materialistic values, indicating the interest in business, prosperity and accumulating wealth in comparison to non-professional students. While the non-professional students yielded significantly higher religious and humanistic values than the professional students. Hence they are more interested in religious activities, ritual work, helping the needy and being kind hearted.

Studies conducted by Agrawal[6], Mathew[7], Bhatnagar[8] and Singh[9] support the findings of this study. In these studies 'Allport-Vernon Value Scale' was administered to the university students and significant differences in values were reported among the students belonging to various faculties.

Value Profiles of Students in the Profession of Engineering, Medicine and Teaching

The value scores of engineering, medical and teacher-training students on the six scales, namely, personal, religious, educational, materialistic, social and humanistic were tabulated separately into frequency distributions, and mean scores and S.D. of each group on the six scales were calculated.

TABLE–XIII

MEAN VALUES OF STUDENTS IN THE PROFESSIONS OF ENGINEERING, MEDICINE AND TEACHING

S. No.	Values	Engineering students	Medical students	Teacher-Training students
		Mean Score	Mean Score	Mean Score
1.	Personal	27·36	29·26	22·56
2.	Religious	21·40	20·74	26·93
3.	Educational	36·19	38·46	35·88
4.	Materialistic	25·50	25·66	24·10
5.	Social	34·53	33·62	34·27
6.	Humanistic	34·26	33·70	36·49

Fig. 3 gives a comparative picture of the value profiles of the three professional groups under consideration.

The mean values of the engineering, medical and teacher-training students are plotted in fig. 3. There is over-lapping on some of the scales. The distributions of educational, humanistic and social values of all the three groups cluster more towards the higher side of the scale, while those of religious and materialistic

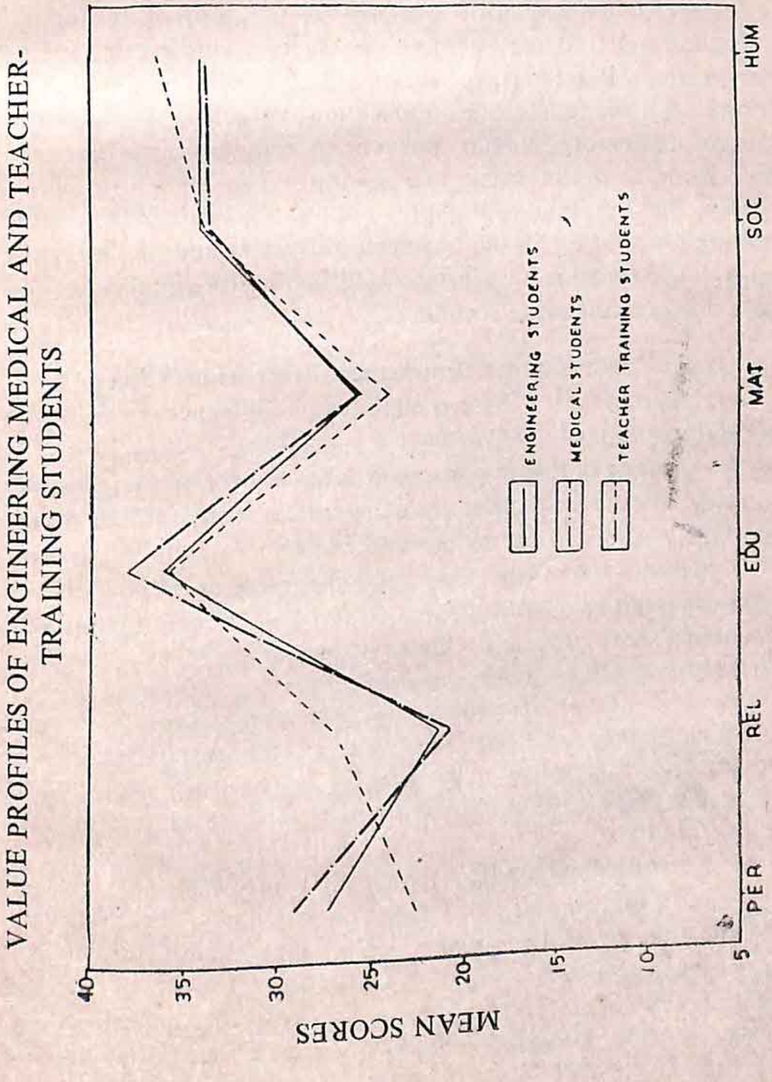


Fig. 3

values more towards the lower side. All the three group show elevation on the educational scale indicating interest in education and higher learning, medical students showing it more than the other two groups. On the humanistic scale student-teachers show marked elevation, reflecting greater interest in helping the needy, in being kind hearted, sympathetic, sacrificing and others oriented than the other two groups. The trend of all the three curves is similar on the social scale, with a slight elevation in case of the engineering students. On the personal scale, the curves of medical and engineering students are more elevated showing greater feeling of hedonism, self-interest, recreation and show off than the student-teachers. On the religious scale the student-teachers show marked elevation indicating greater interest in religious activities and ritual work than the other two groups. The student-teachers, however, show pronounced depression on the materialistic scale reflecting less interest in the business, prosperity and accumulating wealth. The findings have been tested further for significance and reported in the following section.

Inter-Group Comparison of Professional Students on Values

Hypothesis 6(a) : There is significant difference in values of engineering and medical students.

The purpose of this hypothesis was to discover how engineering and medical students differ with regard to their values. This hypothesis was tested on the basis of *t*-test.

Table-XIV shows the results of comparison of values between engineering and medical students. It may be observed that medical students yielded significantly higher values on personal and educational scales. On personal scale the difference between the two groups was found to be significant at 0·05 level and on educational scale the difference was found to be significant at 0·01 level. The two groups did not differ significantly in the other four values. Hence hypothesis 6 (a) is retained with regard to educational and personal values.

The results of Table XIV report that medical students have significantly higher personal values than engineering student. It indicates that medical students possess more dominant feeling of hedonism, self-interest and self-development in comparison to engineering students. Medical students also yielded significantly higher score on educational value, indicating more interest in

TABLE–XIV

COMPARISON OF ENGINEERING AND MEDICAL STUDENTS ON VALUES

S. No.	Values	Engineering students			Medical students			C.R.	P
		N	Mean	S.D.	N	Mean	S.D.		
1.	Personal	116	27·36	6·55	100	29·26	6·40	2·16	0·05
2.	Religious	116	21·40	8·26	100	20·74	7·06	0·61	NS
3.	Educational	116	36·19	5·30	100	38·46	4·94	3·28	0·01
4.	Materialistic	116	25·50	6·43	100	25·66	6·67	0·18	NS
5.	Social	116	34·53	5·12	100	33·62	5·04	1·32	NS
6.	Humanistic	116	34·26	6·66	100	33·70	5·52	0·68	NS

educational activities and higher learning than the engineering students.

In a study of professional students Pal[10] reported significant differences between the values of engineering and medical students. Entwistle[11] reported that students in polytechnics have high economic values and low religious values in comparison to students of other sectors. In these studies 'Allport Vernon Study of Values' was used. Thus the findings of the present study are supported, to some extent, by these studies.

Hypothesis 6 (b) : There is significant difference in values of engineering and teacher-training students.

The objective of this hypothesis was to find out the differences between the values of engineering and teacher-training students. To test this hypothesis of no difference (H_0) *t*-test was applied with 0·01 and 0·05 levels of significance.

The mean scores of engineering and teacher-training students on Mery Manyatayen are shown in Table-XV. It may be observed that engineering students exhibited significantly higher values on personal scale than student-teachers, while the student-teachers yielded significantly higher values on religious and humanistic scales than engineering students. In all these three values the

TABLE–XV

COMPARISON OF ENGINEERING AND TEACHER-TRAINING STUDENTS ON VALUES

S. No.	Values	Engineering Students			Teacher-Training students			C.R.	P
		N	Mean	S.D.	N	Mean	S.D.		
1.	Personal	116	27·36	6·55	151	22·56	5·40	6·40	0·01
2.	Religious	116	21·40	8·26	151	26 93	6·94	5·82	0·01
3.	Educational	116	36·19	5·30	151	35·88	4·12	0·53	NS
4.	Materialistic	116	25·50	6·43	151	24·10	6·01	1·82	NS
5.	Social	116	34·53	5·12	151	34·27	3·98	0·46	NS
6.	Humanistic	116	34·26	6·66	151	36·49	4·62	3·10	0·01

differences between the two groups were significant at 0·01 level. The two groups did not differ significantly in the educational, materialistic and social values. Hence, the hypothesis 6(b), that there is significant difference in values of engineering and teacher-training students, is retained. These two groups differ significantly with regard to personal, religious and humanistic values.

The results of Table-XV shows that engineering students yielded significantly higher personal values than the teacher-training students. It indicates that engineering students are more self-oriented than student-teachers. The teacher-training students show significantly higher religious values than engineering students. Hence teacher-training students are more religious than engineering students. Teacher-training students also yielded significantly higher humanistic values, hence they are more others oriented than engineering students.

Gray[12] found significant differences in values of secondary teachers, accountants and mechanical engineers. Pal[10] also reported significant differences between the values of engineering and teacher-training students. Thus the findings of the present study are supported by these two studies.

Hypothesis 6(c)—There is significant difference in values of medical and teacher-training students.

The objective of this hypothesis was to analyse the differences between the values of medical and teacher-training students. This hypothesis was also tested on the basis of *t*-test.

TABLE XVI

COMPARISON OF MEDICAL AND TEACHER-TRAINING STUDENTS ON VALUES

S. No.	Values	Medical students			Teacher trg. students			C.R.	P
		N	Mean	S.D.	N	Mean	S.D.		
1.	Personal	100	29·26	6·40	151	22·56	5·40	8·70	0·01
2.	Religioue	100	20·74	7·06	151	26·93	6·94	6·80	0·01
3.	Educational	100	38·46	4·94	151	35·88	4·12	4·37	0·01
4.	Materialistic	100	25·66	6·67	151	24·10	6·01	1·90	NS
5.	Social	100	33·62	5·04	151	34·27	3·98	1·10	NS
6.	Humanistic	100	33·70	5·52	151	36·49	4·52	4·23	0·01

The results of the comparison of medical and teacher-training students on 'Mery Manyatayen' are shown in Table-XVI. It may be noted that medical students yielded significantly higher values on personal and educational scales, while teacher-training students indicated significantly higher values on religious and humanistic scales. In all these four values the differences between the two groups were found to be significant at 0.01 level. The two groups did not differ significantly in the materialistic and social values. Hence, hypothesis 6(c) is retained because these two groups differ significantly in the four values.

The results of Table-XVI reveal that medical students yielded significantly higher personal values than teacher-training students. It indicates that medical students are more self-oriented than teacher-training students. The medical students also exhibited significantly higher educational values, hence they take more interest in higher learning and educational activities in comparison to teacher-training students. On the other hand, teacher-training students yielded significantly higher religious and humanistic values than medical students. Hence, they take more interest in religious activities, helping the needy and doing good deeds.

Pal[10] also reported significant differences between the values of medical and teacher-training students on Allport Vernon Study of Values. Like the present study Gee[13] also found low religious and low economic values in medical students. These studies support the findings of the present study.

SUMMARY OF FINDINGS OF PART C

The results drawn from the analysis of data reveal that professional and non-professional students show some distinguishing characteristics. These characteristics of the two categories of students are described as follows :

(A) Professional students : The professional students placed educational value at the top, reflecting that they are more interested in higher studies and want to be good, able and laborious students. Ranking the humanistic and social values at the second and third place, they appear to be interested in helping the needy, in being kind-hearted, in cooperating with others and in doing social work. The personal value has been ranked at the fourth place, indicating the dominant feelings of self-interest, self-development, recreation and show off. They placed less value on materialistic and religious approach.

(B) Non-professional students : The non-professional students placed high esteem on the humanistic value indicating that they have great satisfaction in giving love and sympathy to and making sacrifice for human beings. Educational and social values are placed in the second and third place, reflecting more interest in educational and social activities. Ranking the religious value at the fourth place, they appear to be interested in religious activities, religious books and rituals. The lowest value assessment for the personal approach indicates that they are least interested in the feeling of hedonism, self-interest and self-development.

The results obtained from the analysis of data indicate further that the students in different professions possess some distinguishing characteristics. These characteristics are described as follows :

Engineering students: The engineering students considered educational value to be of greatest importance, indicating that they are very much interested in higher learning. They considered humanistic value and social value more important than personal, materialistic and religious values. The lowest place given to religious value by this group indicate that they take least interest in moral and spiritual development.

Medical students: Medical students placed the highest value upon educational approach, showing very much interest in higher studies and learning activities. Placing the humanistic and social value in higher ranks, they showed interest in 'helping the needy', 'love for humanity' and 'love for people'. Interest in people and humanity is natural for medical students who are constantly reminded to keep the ideal of service to humanity as their prime consideration. According to John Morgan, "The cultivation of medicine as a science requires an enlarged and benevolent mind."[14] Personal value is also important to the medical students, while the materialistic and religious values are not given so much importance.

Student-teachers: The student-teachers ranked the humanistic value on the first place. The second and the third place was given to educational and social values respectively. Religious value is also important to the student-teachers, while the materialistic and personal values are not given so much importance. The lowest value assessment for the personal approach indicates that they are least interested in self-interest, self-development and show off.

PART—D

In this section, the researcher has attempted to find out the relationship of students' self-concept, attitudes and values with their academic achievement. The relationship of these variables with the achievement of students has been analysed faculty-wise.

RELATIONSHIP BETWEEN STUDENTS' SELF CONCEPT AND ACHIEVEMENT

A large number of researches have been conducted to analyse the relationship between students' self-concept and their achievement. It is found that high achievers in schools and colleges possess a feeling of adequacy. Some investigators have found relatively low correlations between self-concept and achievement, others have found fairly high correlations, comparable with correlations between aptitude test scores and academic achievement. On the other hand, some investigators have found zero or no correlation between self-concept and achievement. In the present study, the researcher has made an attempt to analyse this relationship in case of professional and non-professional college students.

Hypothesis 7: The seventh hypothesis of this study was that "there is significant relationship between students, self-concept and achievement."

The objective of this hypothesis was to find out the relationship between self-concept and academic achievement of college students In order to arrive at some definite conclusions in this regard, the self-concepts of students were measured on a five dimensional self-concept scale. The marks or divisions obtained by the students in their final examinations were recorded from the result sheets of the universities concerned. Since the distributions of achievement scores were not symmetrical the product-moment correlation could not be used to analyse the relationship between self-concept and achievement.

In order to ascertain the relationship between self-concept and achievement, the technique of Chi-square was used. The technique of Chi-square was applied by preparing 3×2 contingency tables in case of B.E., M.B B.S., B.Ed. and B.Sc. students and 2×2 table was prepared for B.A. students. The achievement scores of students were split into three classes–Ist Division, IInd Division and IIIrd Division. The achievement scores of B.A. students were split into two classes – IInd Division and IIIrd Division (Out of 286 students only two students got first class in B.A., hence technique of Chi-square was applied by preparing 2×2 contingency table in case of B.A. students.) In case of engineering students the markes were divided into three categories—Ist Division with honour, Ist Division and IInd Division. The subjects of each class were divided into high and low groups on their self-concept scores, using median as the cut off point The obtained Chi-square values were converted into coefficients of contingency (C's). The Chi-squares and the corresponding contingency coefficients are presented in the following tables.

TABLE–XVII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN SELF-CONCEPT AND ACADEMIC ACHIVEMENT OF ENGINEERING STUDENTS

S. No.	Self-concepts	X^2	df	P	C
1.	Achievement	1·20	2	NS	0·10
2.	Confidence	1·00	2	NS	0·09
3.	Withdrawal	2·25	2	NS	0·14
4.	Inferiority feeling	0·60	2	NS	0·07
5.	Emotional Instability	3·31	2	NS	0·17

TABLE–XVIII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN SELF-CONCEPT AND ACADEMIC ACHIEVEMENT OF MEDICAL STUDENTS

S. No.	Self-concept	X^2	df	P	C
1.	Achievement	1·049	2	NS	0·107
2.	Confidence	4 949	2	NS	0·227
3.	Withdrawal	0·964	2	NS	0·102
4.	Inferiority feeling	0·353	2	NS	0·062
5.	Emotional Instability	4·253	2	NS	0·211

TABLE–XIX

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN SELF-CONCEPT AND ACADEMIC ACHIEVEMENT (THEORY EXAMINATION) OF TEACHER-TRAINING STUDENTS

S. No	Self-Concepts	X^2	df	P	C
1.	Achievement	1·608	2	NS	0·106
2.	Confidence	2·271	2	NS	0·144
3.	Withdrawal	3·205	2	NS	0·149
4.	Inferiority feeling	0·292	2	NS	0·045
5.	Emotional Instability	0·341	2	NS	0·049

TABLE–XX

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN SELF-CONCEPT AND ACADEMIC ACHIEVEMENT (PRACTICAL EXAMINATION) OF TEACHER-TRAINING STUDENTS

S. No.	Self-Concepts	X^2	df	P	C
1.	Achievement	2·63	2	NS	0·13
2.	Confidence	1·87	2	NS	0·11
3.	Withdrawal	1·87	2	NS	0·11
4.	Inferiority feeling	0·52	2	NS	0·06
5.	Emotional Instability	1·06	2	NS	0 10

TABLE-XXI

CHI SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN SELF-CONCEPT AND ACADEMIC ACHIEVEMENT OF B.Sc. STUDENTS

S. No.	Self-Concept	X^2	df	P	C
1.	Achievement	0·044	2	NS	0·015
2.	Confidence	3·438	2	NS	0·135
3.	Withdrawal	0·120	2	NS	0·026
4.	Inferiority feeling	3·519	2	NS	0·136
5.	Emotional Instability	2·533	2	NS	0·117

TABLE-XXII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN SELF-CONCEPT AND ACADEMIC ACHIEVEMENT OF B.A. STUDENTS

S. No.	Self-Concept	X^2	df	P	C
1.	Achievement	0 320	1	NS	0·033
2.	Confidence	0·742	1	NS	0·050
3.	Withdrawal	3·568	1	NS	0·111
4.	Inferiority feeling	2·057	1	NS	0 084
5.	Emotional Instability	3·157	1	NS	0·104

Chi-squares and the corresponding C's showing the relationship between self-concept and academic achievement of B.E., M.B.B.S., B.Ed., B.Sc. and B.A. students are shown in Table-XVII, XVIII, XIX, XX, XXI and XXII respectively. The results of these tables show that the X^2 values and corresponding C's are not significant for the relationship between self-concept and achievement of professional and non-professional college-students. On the basis of results of this study it may be said that none of the self-concept variables is significantly related to the students achievement. Hence hypothesis-7, that there is a significant relationship between students' self-concept and achievement, is rejected.

The results of this study are surprising and contradictory to the findings of studies conducted by Morgan[15], Holland and Astin[16], Brim[17] and Bittner[18]. In these studies a significant relationship was reported between self-concept and academic achievement of college students. Many investigators also found a positive relationship between self-concept and achievement of secondary school students.

But there are other studies that support the results of the present study. In their studies Saunders[19] and Carey[20] reported that there was no correlation between self-concept and achievement of college students. Spirack[21] found that there was zero correlation between students' academic achievement and self-acceptance. Bruce and Howard[22] reported that high school students' achievement was not related to their self-concept.

Most of the available studies and theories revealed that there was significant relationship between students' self-concept and achievement. But this type of relationship has not been studied in case of professional college students. Achievement is a very complex variable that depends on several variable (i.e. intelligence, motivation, attitudes, study habits, adjustment problems, aptitude, self-concept, academic background, and several other personality and environmental variables). On the basis of the present study it may be stated here that self-concept variable may not contribute significantly to the achievement of students studying at higher level. Hence there is need of conducting more researches to arrive at some significant results in this field.

RELATIONSHIP BETWEEN STUDENTS' ATTITUDES AND ACHIEVEMENT

Many psychologists and educationists have attempted to explain the achievement behaviour in terms of the attitudes which the school pupils develop toward the courses, schools, teachers, education, reading, peers, parents and themselves. In the present study, the investigator has made an effort to find out the relationship between attitudes and achievement of college students.

Hppothesis-8

The eighth hypothesis of this study was "there is significant relationship between students' attitudes and achievement." The objective of this hypothesis was to analyse the relationship between attitudes and achievement of college students. The attitude of college students were measured by 'College Student Attitude Inventory'. The marks or divisions obtained by the students in their final examinations were recorded from the result-sheets of the universities concerned. In order to ascertain the relationship between academic achievement and attitudes, the technique of X^2 was used. The contingency tables for chi-square were prepared according to the procedure adopted in testing the previous hypothesis. The obtained X^2 values were converted into coefficients of contingency (C's). The chi-squares and the corresponding contingency coefficients are presented in the following tables :

TABLE-XXIII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN THE ATTITUDES AND ACADEMIC ACHIEVEMENT OF ENGINEERING STUDENTS

S. No.	Attitudes	X^2	df	P	C
1.	Attitude toward Education	0·50	2	NS	0·07
2.	Attitude toward Teachers	1·35	2	NS	0·11
3.	Attitude toward Family	0·62	2	NS	0·08
4.	Attitude toward Society	1·16	2	NS	0·10

TABLE XXIV

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN THE ATTITUDES AND ACADEMIC ACHIEVEMENT OF MEDICAL STUDENTS

S. No.	Attitudes	X^2	df	P	C
1.	Attitude toward Education	0·297	2	NS	0·019
2.	Attitude toward Teacher	0·181	2	NS	0·182
3.	Attitude toward Family	0·095	2	NS	0·182
4.	Attitude toward Society	0·100	2	NS	0·175

TABLE–XXV

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN THE ATTITUDES AND ACADEMIC ACHIEVEMENT (THEORY EXAMINATION) OF TEACHER-TRAINING STUDENTS

S. No.	Attitudes	X^2	df	P	C
1.	Attitude toward Education	0·800	2	NS	0·009
2.	Attitude toward Teachers	2·772	2	NS	0·139
3.	Attitude toward Family	3·281	2	NS	0·151
4.	Attitude toward Society	2·642	2	NS	0·136

TABLE–XXVI

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN THE ATTITUDES AND ACADEMIC ACHIEVEMENT (PRACTICAL EXAMINATION) OF TEACHER-TRAINING STUDENTS

S. No.	Attitude	X^2	df	P	C
1.	Attitude toward Education	1·80	2	NS	0·11
2.	Attitude toward Teachers	2·32	2	NS	0·12
3.	Attitude toward Family	1·90	2	NS	0·11
4	Attitude toward Society	1·01	2	NS	0·08

TABLE–XXVII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN THE ATTITUDES AND ACADEMIC ACHIEVEMENT OF B.Sc. STUDENTS

S. No.	Attitude	X^2	df	P	C
1.	Attitude toward Education	5·782	2	NS	0·175
2.	Attitude toward Teachers	4·281	2	NS	0·151
3.	Attitude toward Family	2·686	2	NS	0·120
4.	Attitude toward Society	6·267	2	NS	0·181

TABLE–XXVIII

CHI-SQUARES AND CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN THE ATTITUTES AND ACADEMIC ACHIEVEMENT OF B.A. STUDENTS

S. No.	Attitude	X^2	df	P	C
1	Attitude toward Education	0·297	1	NS	0·032
2.	Attitude toward Teachers	0·181	1	NS	0·024
3.	Attitude toward Family	0·095	1	NS	0·017
4.	Attitude toward Society	0·100	1	NS	0·018

Chi-squares and the corresponding C's showing the relationship between attitudes and academic achievement of B.E., M.B.B S., B.Ed., B.Sc. and B.A. students are shown in Tables-XXIII, XXIV, XXV, XXVI, XXVII and XXVIII respectively. The results of these tables show that X^2 values and the corresponding C's are not significant for the relationship between attitudes and achievement of college students. On the basis of these results it may be concluded that none of the attitude variables under consideration is significantly related to the students achievement. Hence hypothesis-8, that there is significant relationship between students attitudes and achievement, is rejected.

The results of this study are contradictory to the findings of studies conducted by Baraheni[23], Passow and Goldberg[24], Barrett[25], and Wilson and Morrow[26]. In these studies, it is found that positive attitudes toward school or college, subjects of study, teachers, etc. are associated with high academic achievement. Cooper and Lewis[27] found that achievers and non-achievers had difference in attitudes toward parents.

But there are also some studies that support the results of the present study, McCluskey[28] reported that students attitudes toward teachers and school correlate almost negligibly with students performance. Featherstone[29] found that there was limited relationship between the attitude toward the course and the final grade of the university students. Simpson[30] found no significant relationship between attitude toward reading and reading achievement.

On Indian population, there seems to be no research precedence, particularly related to the present problem. Hence it needs further probing through a number of replications of such studies to arrive at some definite conclusions.

RELATIONSHIP BETWEEN STUDENTS' VALUES AND ACHIEVEMENT

As discussed earlier, one's values constitute an important source of behavioural motivation. School learning is also an aspect of behaviour. In a few researches attempts have been made to find out the relationship between students values and academic achievement. In the present study, the investigator has made an effort to find out the relationship between values and achievement of college students.

Hypothesis-9

The last major hypothesis of this study was that "the students' achievement is independent of their values". In order to test this hypothesis, the values of students were measured by 'Mery Manyatayen'. The marks or divisions obtained by the students in their final examinations were recorded from the result sheets of the universities concerned. Since the distributions of achievement scores were not symmetrical, in order to ascertain the relationship between values and achievement, the technique of X^2 was used. The tables for X^2 were prepared according to the procedure adopted in testing hypothesis-7. The obtained X^2 values were converted into coefficients of contingency (C's). The Chi-squares and the corresponding contingency coefficients are presented in the following tables :

TABLE-XXIX

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN VALUES AND ACADEMIC ACHIEVEMENT OF ENGINEERING STUDENTS

S. No.	Values	X^2	df	P	C
1.	Personal	0·69	2	NS	0·08
2.	Religious	1·68	2	NS	0·12
3.	Educational	0·70	2	NS	0·08
4.	Materialistic	0·80	2	NS	0·08
5.	Social	0 10	2	NS	0·03
6.	Humanistic	1·46	2	NS	0·11

TABLE–XXX

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN VALUES AND ACADEMIC ACHIEVEMENT OF MEDICAL STUDENTS

S. No.	Values	X^2	df	P	C
1.	Personal	2·445	2	NS	0·162
2.	Religious	0·169	2	NS	0·043
3.	Educational	3 859	2	NS	0·202
4.	Materialistic	0·506	2	NS	0·075
5.	Social	2·982	2	NS	0·178
6.	Humanistic	0·963	2	NS	0·102

TABLE–XXXI

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN VALUES AND ACADEMIC ACHIEVEMENT (THEORY EXAMINATION) OF TEACHER-TRAINING STUDENTS

S. No	Values	X^2	df	P	C
1.	Personal	2·510	2	NS	0·132
2.	Religious	5·099	2	NS	0·187
3.	Educational	0·885	2	NS	0·078
4.	Materialistic	1·477	2	NS	0·102
5.	Social	2·277	2	NS	0·126
6.	Humanistic	1·196	2	NS	0·092

TABLE–XXXII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN VALUES AND ACADEMIC ACHIEVEMENT (PRACTICAL EXAMINATION) OF TEACHER-TRAINING STUDENTS

S. No.	Values	X^2	df	P	C
1.	Personal	0·73	2	NS	0·07
2.	Religious	1·97	2	NS	0·11
3.	Educational	1·59	2	NS	0·10
4.	Materialistic	4·34	2	NS	4·17
5.	Social	0·12	2	NS	4·03
6.	Humanistic	1·90	2	NS	0·11

TABLE–XXXIII

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN VALUES AND ACADEMIC ACHIEVEMENT OF B.Sc. STUDENTS

S. No.	Values	X^2	df	P	C
1.	Personal	5·403	2	NS	0·169
2.	Religious	0·113	2	NS	0·025
3.	Educational	0·788	2	NS	0·065
4.	Materialistic	0·630	2	NS	0·058
5.	Social	0·871	2	NS	0·069
6.	Humanistic	4·512	2	NS	0·155

TABLE–XXXIV

CHI-SQUARES AND THE CORRESPONDING C's SHOWING THE RELATIONSHIP BETWEEN VALUES AND ACADEMIC ACHIEVEMENT OF B.A. STUDENTS

S. No.	Values	X^2	df	P	C
1.	Personal	0·454	1	NS	0·039
2.	Religious	5·928	1	0·05	0·142
3.	Educational	0·921	1	NS	0·057
4.	Materialistic	3·234	1	NS	0·105
5.	Social	1·127	1	NS	0·062
6.	Humanistic	0·012	1	NS	0·006

Chi-squares and the corresponding C's showing the relationship between values and achievement of B E., M.B.B S., B.Ed., B Sc, and B.A. students are shown in Tables-XXIX, XXX, XXXI, XXXII, XXXIII and XXXIV respectively. The results of these tables show that none of the values is significantly related to the achievement of B.E., M.B.B.S., B.Ed. and B.Sc. students. Only the religious value is found to be related significantly to the achievement of B.A. students at ·05 level of significance.

On the basis of results drawn from above tables, it may be concluded that B E., M.B.B.S., B.Ed., and B.Sc. students' achievement is independent of their values. Hence, hypothesis-9, that students achievement is independent of their values is proved. These findings are supported by Bellucci[31] who found that none of the values was significantly related to the success of students in practical nursing training. While Cole and Miller[32] found that academic achievement is significantly related to the values of college students.

In the present study the religious value is found to be significantly related to the achievement of B A. students. From the table of X^2 calculation it is clear that religious value is negatively related to the academic achievement of B.A. students. In a study of high school students, Gaur[1] found that students learning was negatively related to their religious values.

Contradictory findings indicate that further researches are necessary to arrive at some definite conclusions in this field.

SUMMARY OF FINDINGS OF PART–D

The results of this study reveals that none of the self-concept variables has been found significantly related to the academic achievement of professional and non-professional college students.

None of the attitude variables under-consideration was found to be significantly related to the students' academic achievement.

None of the six values measured in this study has significant relationship with the academic achievement of B.E , M.B.B.S., B.Ed., and B.Sc. students.

The religious value was found to be significantly related to the academic achievement of B.A. students. The relationship between academic achievement and religious value was found negative.

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5

Implications of the Findings and Suggestions for further study

In this chapter an attempt has been made to provide suggestions as to how the findings of this study can be utilized in the field of education. Suggestions for further research have also been made.

The student is an important variable in the educational process. He is both an 'input' and an 'output' of the system. He possesses certain characteristics. The characteristics of student play significant role in the qualitative improvement in the 'output'. Knowledge of students self-concept, attitudes and values may help the teachers. guidance workers and counsellors in giving educational and vocational guidance to them.

Implications for the Government

It seems that owing to aimless rapid expansion of college education and at the same time corresponding increase in unemployment of educated persons, the college students are frustrated and worried about their future. The study of self-concept has revealed that the non-professional students perceive themselves to be inferior in comparison to the professional students, while the professional students perceive themselves to be more confident in comparison to the non-professional students. Unemployment on large scale may be the cause of inferiority and less confidence in the non-professional college students. It is, therefore, imperative for the universities and other authorities to provide job oriented education at college level. The objective of the college education should be related to productivity. The curriculum of higher education should be planned according to the needs of both society and individual. It is also found that teacher-training students perceive themselves to be inferior and less confident in comparison to medical and engineering students. The problem of unemployment among trained teachers, and their low emoluments and poor facilities in comparison to those of engineers and doctors may be the cause of feeling of inadequacy among teacher-training students. Therefore, it is suggested that if we want to develop confidence and feeling of adequacy among teachers and teacher-training students, the government should improve the salaries and service conditions of teachers to the level of engineers and doctors.

Both the professional as well as non-professional students exhibited lowest mean score on attitude towards society dimension of 'College Student Attitude Inventory'. It indicates that our college students do not possess favourable feeling toward society. The cause of negative feeling toward society may be the evils and bad practices rampant in the present society. Hence, the government should take urgent steps to eradicate these evils so that our youth may live in a constructive society.

Implications for Teachers

On the basis of the study of self-concept, it has been found that college students of all the faculties under-consideration exhibited highest mean scores on the feeling of emotional instability and withdrawal dimensions of self-concept. It indicates that the college students perceive themselves as suffering from the feeling of emotional instability and they fear to face the situations of life. It is for the college teachers to develop the feeling of emotional stability and confidence among the college students so that they may face the problems of life boldly. The college students yielded low score on achievement dimension of self-concept, it indicates that they perceive themselves as low achievers in life situations. Hence, it is the duty of college teachers to encourage their students to be better achievers. It has also been revealed that the student-teachers perceive themselves to be inferior to engineering and medical students. It is for the teacher-educators to develop the feeling of superiority and adequacy among the teacher-training students by reminding them of the significance of the teaching profession in the development of the nation and in reforming the society.

On the basis of the study of attitudes, it has been found that professional students have less favourable attitudes toward their teachers in comparison to non-professional students During the period of data collection, it was assessed by the researcher that the professional college students perceived their teachers as more authoritarian than non-professional students perceive theirs. Especially the medical college students do not like the bossism of their teachers and criticize them. It is for the professional college teacher to change their authoritarian behaviour and to develop the feeling of fearlessness among their students.

It has also been revealed that teacher-training students possess low educational values in comparison to engineering and medical college students. It is for teacher-educators to generate the interest of teacher-training students in education so that they may be successful in teaching profession.

Implications for Guidance Workers

The findings of this study may be helpful to the guidance workers in providing educational and vocational guidance to the college students. Man analysis and Job analysis are the two important aspects of vocational guidance. An individual before deciding to prepare for a profession toward which he is inclined, should know about it well enough to be certain that his abilities and personality characteristics are such as would enable him to be successful not only in the professional training but also in the profession itself. The counsellors and other guidance workers engaged in providing vocational guidance should themselves be well informed of these requirements. The salf-concept, attitudes and values of engineering, medical and teacher-training students which emerged from the present study are not sufficient to provide a base for occupational choice. However, these characteristics clarify to some extent the image of three groups of professional and two groups of non-professional students under consideration.

The present study suggests that professional students should not be selected only on the basis of academic competence but some personality variables should also be included in the criteria for selection. A good selection procedure should not only pick up those who have more probability of success in the professional training but also identify those who are capable of being successful engineers, doctors and teachers. The study also suggests that some psychological tests should also be administered to the students at the time of selection for the professional training.

In the present study, it was found that both the professional and non-professional students perceived themselves as sufferers from the feeling of emotional instability and tendencies to escape from the situations of life. It is, therefore, for the guidance workers to find out the causes of feeling of withdrawing tendency and emotional instability among the college students The guidance workers should also suggest the remedies for developing confidence and feeling of emotional stability among the college students.

Implications Pertaining to Education

So far the researcher has discussed some of the practical implications of the study pertaining to government, teachers and guidance workers. In this connection it is also important to discuss some of the main theoretical implications of the study which are vital to education. This would enable scholars to plan research studies for further investigation and thereby increase the fund of knowledge in this field.

The findings of the present study reveal that professional and non-professional students differ significantly on one or more dimensions of self-concept, attitudes and values. It indicates that the nature of subject matter or profession affects the self-concept, attitudes and values of college students. The effect of profession or curriculum on other non-intellectual variables of students personality may be investigated in further research studies.

In the present investigation, it has been found that college students' self-concept, attitudes and values are not significantly related with their achievement. These findings are contrary to the findings of some earlier studies but are supported by the other studies conducted earlier. Hence, to arrive at some definite conclusion more studies should be conducted by using different tools. What are the other personality variables that contribute significantly to the students' achievement in a particular faculty or profession, may be investigated in the further studies and the findings of these studies may be utilized to raise the standard of college education.

Suggestions for Further Research

There are innumerable problem in the field of education. In crder to understand these problems more clearly and precisely, it is essential to conduct many research studies. One piece of research work can not explain all the problems in the field of education. Hence, more and more research studies should be undertaken to examine these problems. Further, it is also not possible for a single research worker to cover all the dimensions of a particular problem or to extend the field of investigation to cover all the different types of population owing to paucity of time, money, and energy. The present investigation is confined to study the self-concept, attitudes and values of the professional and non-professional students of Meerut Region. An attempt has also been made to analyse the relationship of these variables with students' achievement. The results of this study are open to further research and verification. Besides, there remain a few more questions which have not been solved by the present investigation and there are a few other questions which have been raised by the present study.

Need for Larger and More Diverse Samples

Owing to the limitations of time, money and energy, the present study was confined to the professional and non-professional students of Meerut Region. Hence, conclusions drawn from the study are applicable to the students of Meerut Region only. Further researches may be taken up on the wider population of different regions of the state in order to make broader generalization about students' self-concept, attitudes and values. In order to obtain more definite conclusions a national level sample may be drawn up and the study may be conducted on this sample.

The present study was conducted on the professional students of three professions, namely, engineering, medicine and teaching, and non-professional students of two faculties, namely, arts and science. Greater diversity would be introduced if other professions and faculties other than those covered by this study are also investigated. The present study was conducted on graduate students. Similar studies may be conducted on post-graduate students. The present study was conducted only on male students. Female students may also be included in other studies. A comparative study of boys and girls can also be made.

Similar studies may be conducted on the students of High School and Intermediate. A study may be conducted to compare the self-concept, attitudes and values of the students who offered vocational education and those who offered academic education at plus two (+2) stage in the 10+2+3 system of education.

Need for a More Comprehensive Study

In the present study, the researcher has studied only the self-concept, attitudes and values of students. To understand the behaviour of students fully, it is essential to study them also in respect of other variables as intellectual potential, academic motivation, educational aspirations, socio-economic status, study habits, their problems in various fields and other personality characteristics.

In the present study, the students' self-concepts were measured only on five dimensions, namely, Achievement, Confidence, Withdrawal, Inferiority feeling and Emotional instability. To study the students' self-concept fully, other tools that can measure more aspects of self-concept should be used. In the present study only six values, namely, Personal, Educational Religious, Materialistic, Social and Humanistic were measured. Other values like political, aesthetic and theoretical may be included in further studies. The students' attitudes also should be measured in all the various fields, instead of attitude toward education, teachers, family and society.

In the present study, it was found that none of the self-concept and attitude variables was significantly related to the students' achievement. Significant relationship was found only between religious values and achievement of B.A. students. These findings are contrary to the findings of some earlier studies but are supported by the other studies conducted earlier. Hence, to arrive at some definite conclusions there is need of more researches using different tools and different criteria of academic achievement.

Finding out a dependable and reliable criteria of academic achievement is a puzzling problem for every researcher. Hence, more appropriate tools, having special relevance to academic achievement, should be developed for the purpose.

The study should cover various factors that may be important in academic performance. Since it is not feasible for one person to investigate all the probable factors, several investigators may form a team so that they may study different factors simultaneously on the same sample

Researches may be planned by developing a fairly exhaustive list of traits relevant to success in professional and non-professional education and different groups may be compared.

The findings of the study should be cross validated.

6

Summary and Conclusions

Nature of subject matter, curriculum, co-curricular activities and the environment of professional and non-professional colleges are organised differently to achieve the aims and objectives of particular type of professional or non-professional education. This difference in the environmental structure of professional and non-professional colleges may affect differently the growth and development of psychological characteristics of the students. It may reasonably be thought that the students of professional and non-professional colleges for this reason, may differ in their attitudes, self-concept and values. This is worth studying for several reasons. But very few attempts have been made so far. Research in this direction has not, so far, received sufficient attention, particularly at the professional college level. Hence, the investigator has attempted to make a comparative study of attitudes, self-concept and values of professional and non-professional students with a view to specify how the two groups of students differ from one another on the different dimensions of these variables.

A good number of investigators have tried to investigate the various non-intellectual factors in order to explain that part of variance in scholastic achievement which remains unexplained by the intellectual factors. On the basis of review of literature, it is revealed that self-concept, attitudes and values of students have a relationship with their achievement. But the evidence is not conclusive. There are a few studies which present a different picture also. Most of these studies have been conducted at school level. Perhaps, no study has so far been conducted to relate these variables to the achievement of professional college students. Hence in the present study the researcher has attempted to analyse the relationship of these variables with the achievement of professional and non-professional college students. Therefore, the problem undertaken is titled as *"A study of Attitudes, Self-Concept and Values of Professional ond Non-Professional College Students and Relationship of these Variables with their Achievement"*.

Objectives

1. To compare the attitudes, values and self-concepts of the professional and non-professional college students.
2. To compare the attitudes, values and self-concepts of the students preparing for the professions of engineering, medicine and teaching.
3. To examine whether there are significant differences in the attitudes, self-concepts and values of the professional and non-professional college students.
4. To examine whether there are significant differences in the attitudes, self-concepts and values of the students preparing for the professions of engineering, medicine and teaching.
5. To ascertain the relationship of attitudes, self-concepts and values with the achievement of professional and non-professional college students.
6. To analyse the variable that contributes more significantly to the academic achievement of the students in a particular faculty.
7. To offer suggestions regarding the utility of these characterstics of students for their educational and vocational planning.

Hypotheses

1. There is significant difference in self-concepts of professional and non-professional college students.
2. There is significant difference among the self-concepts of engineering, medical and teacher-training students as follows :
    - (a) There is significant difference in the self-concepts of engineering and medical students.
    - (b) There is significant difference in the self concepts of engineering and teacher-training students.

   (c) There is significant difference in the self-concepts of medical and teacher-training students.

3. There is significant difference in the attitudes of professional and non professional college students.
4. There is significant difference among the attitudes of engineering, medical and teacher-training students as follows :
   (a) There is significant difference in the attitudes of engineering and medical students.
   (b) There is significant difference in the attitudes of engineering and teacher-training students.
   (c) There is significant difference in the attitudes of medical and teacher-training students.
5. There is significant difference in the values of professional and non-professional students.
6. There is significant difference among the values of engineering, medical and teacher-training students as follows :
   (a) There is significant difference in the values of engineering and medical college students.
   (b) There is significant difference in the values of engineering and teacher-training students.
   (c) There is significant difference in the values of medical and teacher-training students.
7. There is significant relationship between students' self-concept and achievement.
8. There is significant relationship between students' attitudes and achievement.
9. The students' achievement is independent of their values.

DEFINITIONS OF IMPORTANT TERMS

Self-Concept : In the present study, self-concepts are defined as the perception of the students about their own personality qualities.

Values : Students values are defined as "what the students think important in life."

Attitudes : Attitude is defined as "a tendency to react favourably or unfavourably towards a designated class of stimuli". In the present study the researcher is concerned with attitudes of students towards education, teachers, family and society.

Achievement: The aggregate marks obtained in the examination by the students of various faculties has been accepted as the criterion of students' academic achievement.

Sample

The population of the present study is defined as the final year male students of engineering (B.E.) of Roorkee University, final year male students of medicine (M. B. B. S.) of L. L. R. Medical College, Meerut, second semester students of teacher training (B.Ed.), and final year male graduate students (B. A. & B. Sc.) of the affiliated colleges of Meerut University. The data producing sample consisted of ten institutions and 890 students.

Tools used

To measure the involved variables the following tools were used.

1. *A Study of Self-Concept*: Constructed by Dr. R.P. Bhatnagar. It measures five aspects of self-concept: (i) Achievement, (ii) Confidence, (iii) Withdrawing Tendencies, (iv) Inferiority feeling, (v) Emotional Instability.

2. *Mery Manyatayeul*: Constructed by Dr. S.K. Aggarwal. It measures six values: (i) Personal, (ii) Religious, (iii) Educational, (iv) Materialistic, (v) Social, (vi) Humanistic.

3. '*College Student Attitude Inventory*' constructed by researcher himself. This inventory measures attitude toward Teachers, Education, Family and Society.

Statistical Technique used

The significance of difference in the means of self-concept, attitudes and values of professional and non-professional students were tested on the basis of the *t*-test with 0·05 and 0·01 levels of significance. The technique of chi-square was applied to find out the relationship between different variables and academic achievement of students. The obtained chi-square values were converted into coefficient of contingency (C's).

THE FINDINGS

Self-Concept of Professional and Non-Professional Students

On the self-concept dimensions, the professional college students emerged as persons who perceive themselves as suffering from the feeling of withdrawing tendencies and emotional instability because the mean scores on these two aspects of self-concept were the highest. On the other hand, they perceive themselves superior because the mean score on inferiority dimension was the lowest. They also perceive themselves more confident and less achiever in life situations.

On the self-concept scales, the non-professional students also emerged as persons who perceive themselves as suffering from the feeling of withdrawal tendencies and emtional instability. Their mean score on inferiority dimension was the lowest, it indicates that they perceive themselves less inferior.

Comparison of Professional and Non-Professional Students on Self-Concept

The professional students perceive themselves more confident in comparison to non-professional students. They also perceive themselves to be persons who suffer more from the feeling of emotional instability in comparison to non-professional students. The non-professional students perceive themselves to be inferior to the professional students. No significant difference was found between the two groups on achievement and withdrawal dimensions of self-concept.

Inter-Group Comparison Among Various Sub-Groups of Professional Students on Self-Concept

(*a*) *Engineering and Medical Students*: The analysis of data reveals that engineering and medical students differ significantly only on confidence dimension of self-concept. On the basis of results, it may be concluded that engineering students perceive themselves to be more confident in life situations than the medical students.

(*b*) *Engineering and Teacher-Training Students*: The engineering and teacher-training students differ significantly on confidence and inferiority feeling dimensions of self-concept. The engineering students are found to be persons who perceive themselves more confident and superior to the teacher-training students.

(*c*) *Medical and Teacher-Training Students*: The medical and teacher-training students were found to differ significantly on withdrawal and emotional instability dimensions of self-concept. The medical college students were found to be persons who perceive themselves suffering more from the feeling of emotional instability than the teacher-training students, while the teacher-training students were found to be persons who perceive themselves suffering more from the feeling of withdrawal and tendencies to escape from the situations of life. These two groups have not been found to differ significantly on achievement, confidence and inferiority dimensions of self-concept.

Comparison of Professional and Non-Professional Students on Attitudes.

Both the professional as well as non-professional students exhibited the highest mean scores on attitude toward family and the lowest mean scores on attitude toward society. The results reveal that the professional students differ significantly from non-professional students with regard to attitudes toward teachers and society. The non-professional students have more positive attitudes toward their teachers in comparison to the professional students. It is also found that non-professional student have more positive attitudes toward society in comparison to professional students.

Inter Group Comparison Among Various Sub-Groups of Professional Students on Attitudes

(a) Engineering andM edical Students : No significant difference was found between the measured attitudes of engineering and medical college students. It indicates that these two groups are alike in their attitude orientation.

(b) Engineering and Teacher-Training Students : The engineering and teacher-training students differ significantly on attitude toward teachers and family. The teacher-training students exhibited more positive attitudes toward their teachers in comparison to engineering students, while the engineering students exhibited more positive attitudes toward family in comparison to teacher-training students.

(c) Medical and Teacher-Training Students : The medical and teacher-training students were found to differ significantly on three scales, namely, attitude toward teachers, family and society. The medical students possess more favourable responses toward family and society in comparison to student-teachers, while the teacher-training students have more positive attitudes toward their teachers in comparison to medical students. Perhaps, the authoritarian behaviour of, and high subjectivity in the internal assessment by the medical college teachers may be the cause of medical students' unfavourable responses toward their teachers.

Values of Professional and Non-professional Students.

The professional students placed educational value on the top, it reflects that they are more interested in higher studies and want to be a good, able and laborious students. With ranking the humanistic and social values in the second and third place, it seems that they are also interested in helping the needy, to be kind hearted, to cooperate with others and to do social work. The personal value has been ranked at the fourth place, it indicates the dominant feeling of self-interest, self-development, recreation and show off. However, they placed lesser value on materialistic and religious approach.

The non-professional students placed higest esteem on the humanistic value, it indicates that they gain greater satisfaction in providing love, sympathy and sacrifice for human beings. Educational and social values are placed at the second and third place, it reflects more interest in educational and social activities. With ranking the religious value in fourth place, it seems that they are also interested in religious activities, religious books and rituals. The lowest value assessment for the personal approach indicates that they are least interested in dominant feeling of hedonism, self-interest and self-development.

Comparison of Professional and Non-professional Students on Values

The analysis of data has revealed that professional and non-professional students differ significantly in personal, religious, materialistic and humanistic values. The professional students possess higher personal and materialistic values, it indicates their more interest in self-development, prosperity and accumulating the wealth in comparison to non-professional students. On the other hand, the non-professional students possess significantly higher religious and humanistic values than the professional students.

Values of Engineering, Medical and Teacher-Training Students

The engineering students considered educational values most significant in their life, it indicates that they are much interested in higher learning. They consider humanistic and social values more important than personal, religious and materialistic values. The lowest place given to the religious value by this group, indicates that they take least interest in moral and spiritual development.

Medical students placed the highest value or educational approach, showing too much interest in higher studies and learning activities. Placing the humanistic and social values in higher ranks, they show interest in 'helping the needy', 'love for humanity' and 'love for people'. Personal value is also important to medical students, while the importance to the materialistic and religious values was not given by them.

Student-teachers placed the humanistic value on the top. Second and third place were given to educational and social values. Religious value is also important to the student-teachers, while the importance to the materialistic and personal values was not given by them. The lowest value assessment for the personal approach indicates that they are least interested in self-interest, self-development and show off.

Inter Group Comparison Among Various Sub-Groups of Professional Students on Values

(*a*) *Engineering and Medical Students*: The engineering and medical college students differ significantly in personal and educational values. The medical college students have significantly higher personal values than the engineering students. Medical students also yielded significantly higher score on educational value, indicating more interest in educational activities and higher learning in comparison to the engineering students.

(*b*) *Engineering and Teacher-Training Students*: The engineering and teacher-training students differ significantly in personal, religious and humanistic values. The engineering students possess significantly higher personal values than teacher-training students, while the teacher-training students possess significantly higher religious and humanistic values than the engineering students. Thus, the teacher-training students are found to be more religious and humanistic than the engineering students.

(c) *Medical and Teacher-Training Students* : The medical and teacher-training students differ significantly in personal, religious, educational and humanistic values. The medical students possess significantly higher personal and educational values in comparison to teacher-training students, while the student-teachers exhibited significantly higher religious and humanistic values in comparison to the medical students.

Relationship of Students' Self-Concept, Attitudes and Values with their Academic Achievement

The reseacher has attempted to find out the relationship of students' self-concept, attitudes and values with their achievement. The relationship of these variables with the achievement of students has been analysed faculty-wise.

Self-Concept and Achievement

The results reveal that none of the self-concept variables was found to be significantly related to the students' academic achievement. On the basis of present investigation, it may be stated here that self-concept variables may not contribute significantly to the achievement of students who are studying at higher level. Thus, the hypothesis, that there is significant relationship between students' self-concept and achievement, has been rejected.

Attitudes and Achievement

On the basis of results it may be concluded that none of the attitude variables under consideration was found to be significantly related to the students' academic achievement. Hence, the hypothesis that there is significant relationship between students attitudes and achievement, has been rejected.

Values and Achievement

The results reveal that none of the value was found to be significantly related to the achievement of B. E., M. B. B. S.,

B. Ed., and B. Sc. students. Only the religious value was found significantly related to the achievement of B. A. students at ·05 level of significance. This relationship was negative.

Conclusions

(1) Findings in general leads to the conclusion that significant differences do exist between professional and non-professional students with regard to their self-concept, attitudes and values.

(2) The professional college students emerged as persons who perceive themselves to be more confident and higher achievers than the non-professional students.

(3) The professional students have dominant personal and humanistic values, while non-professional students have been found to be more religious in comparison to professional students.

(4) The non-professional students have more positive attitudes toward their teachers and society than professional students.

(5) Findings in general lead to the conclusion that significant differences do exist between engineering, medical and teacher-training students on majority of the values, attitudes and self-concept variables under investigation.

(6) The engineering and medical students perceive themselves to be superior to the teacher-training students.

(7) All the groups of students in general perceive themselves as suffering from the feeling of emotional instability.

(8) All the groups exhibited more positive attitudes toward family and less favourable responses toward society.

(9) The engineering and medical college students have not been found to differ in their attitudes.

(10) The engineering and medical students possess higher personal, materialistic and educational values than student-teachers.

(11) The student-teachers are found to be more religious and humanistic than the medical and engineering students.

(12) In a majority of the characteristics under investigation engineering and medical students have been found to be alike.

(13) In the present study no significant relationship was found between the students' self-concept and achievement, between

students' attitudes and achievement, and between students' values and achievement.

Achievement is a very complex variable that depends on several other variables. From the findings of the present and few other studies, it seems that students self-concept, attitude and values may not contribute significantly to their achievement at college level. Hence, there is necessity of conducting more experimental researches to draw some significant results in this field.

As stated earlier, the findings reveal that significant differences in self-concept, attitudes and values do exist between students preparing for the professions of engineering, medicine and teaching. The question whether these students develop these characteristics during the training period or the students who have such characteristics already come to these professions can not be adequately answered by means of this study alone. Therefore, other studies must be conducted to generalize the findings in this direction.

IMPLICATIONS OF FINDINGS OF THE STUDY

These findings have important implications for the government, teachers, guidance workers and education.

Implications for Government

(i) It has been revealed from the study of self-concept that the non-professional students perceive themselves as less confident and inferior to the professional students. Perhaps, the unemployment at large scale may be the cause of inferiority feeling and lesser confidence among the non-professional students. It is, therefore, for the government and universities to provide the job-oriented education at college level.

(ii) The teacher-training students possess the feeling of inferiority and lesser confidence in comparison to engineering and medical students. Therefore, to develop the confidence and feeling of superiority among the teacher-training students, the government should provide sufficient job opportunity, high pay scale and more facilities for teachers' like those of engineers and doctors.

(iii) The students of all the faculties yielded lowest mean score on attitude toward society. Perhaps, the cause of negative feeling may be the evils associated with our society. It should be the duty of government to take measures to eradicate these evils from the society.

Implications for Teachers

(i) It has been revealed that college students of all the faculties under consideration suffer from the feeling of emotional instability and tendencies to escape from the situations of life. It is for the college teachers to develop confidence and feeling of emotional stability among college students.

(ii) It has been revealed that teacher-training students perceive themselves as somewhat inferior and less confident. It may be suggestion for the teacher-educators to develop the feeling of superiority and confidence among the teacher-training students.

(iii) The professional college students show negative feeling toward their teachers. It is suggested for the professional college teachers (especially for the medical college teachers) to change their authoritarian behaviour. They should develop the feeling of fearlessness among their students.

(iv) It has been revealed that the teacher-training students possess low educational value and low mean score on attitude toward education in comparison to engineering and medical students. It should be the duty of teacher-educators to generate the interest of teacher-training students in education.

Implications for Guidance Workers

(i) The findings of this study may be helpful to guidance worker in providing educational and vocational guidance to college students.

(ii) Self-concept, values and attitudes of professional and non-professional students which emerged from this study are not sufficient to provide a base for occupational choice, however, these characteristics clarify to some extent, the image of three groups of professional and two groups of non-professional students.

(iii) The present study suggests that the professional students should not be selected only on the basis of academic competence but some personality variables should also be included in the criteria for selection.

(iv) It has been found that the college students of all the faculties perceive themselves as sufferers from feeling of emotional instability and tendencies to escape from the situations of life. It may be suggested for the guidance workers to find out the remedities for developing the confidence and feeling of emotional stability among college students.

Implications to Education

(i) The findings of the present study reveal that professional and non-professional students differ significantly on one or more dimensions of self-concept, attitudes and values. It indicates that the nature of subject matter or profession affects the self-concept, attitudes and values of the college students. The effect of profession or curriculum on the other non-intellectual variables of students' personality may be investigated in further research studies.

(ii) It has been found that students self-concept, values and attitudes are not significantly related to their achievement. These results should be verified by conducting further studies.

Suggestions for Further Research

(i) Further research may be conducted at the national level so that the generalization of wider nature may be made.

(ii) Greater diversity would be introduced if other professions and faculties than those covered by this study are also investigated.

(iii) Similar study may be conducted on post graduate students.

(iv) Female students may also be included in other studies and a comparative study of boys and girls may also be made.

(v) To understand the behaviour of students fully, other variables as intellectual potential, academic motivation, educational aspiration, socio-economic status, study habits and other personality variables may be included in further research.

(vi) The study should cover variety of factors that may be important in academic performance. Since it may not be feasible for one person to investigate all the probable factors, several investigators may form a team to study different factors simultaneously in the same sample.

(vii) Researches may be planned by developing a fairly exhaustive list of traits relevant to success in professional as well as non-professional education and different groups may be compared.

(viii) The findings of this study should be cross-validated.

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